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## ORIGINAL ARTICLES

### RETINITIS AND OTHER CHANGES IN THE EYES OF DIABETICS

BY F. M. SPALDING, M.D., AND W. STANLEY CURTIS, M.D.

ALTHOUGH "diabetic retinitis" is accepted as an entity in current text books, it appears from the literature that the existence of a retinitis solely due to diabetes mellitus remains to be proved. The mingling of lesions depending on vascular hypertension, arteriosclerosis, and a concomitant nephritis, on the one hand, and hyperglycemia, on the other, have disappointed every attempt thus far to demonstrate just what role is played by diabetes *per se*. As the importance of a research lies exactly in a differentiation of the parts played by these conditions, it must embrace a detailed study of the individual as regards blood pressure, blood chemistry including blood sugar, non-protein nitrogen and blood fat, arteriosclerosis, and renal function, with a careful "follow-up" of such patients as present themselves for the first time without retinal changes.

*Review of Literature*—Few references to the occurrence of retinitis in diabetic patients with or without an associated nephritis are found, previous to Hirschberg's classical paper in 1890. He classified the retinal lesions of diabetes mellitus into the following three groups, which have been observed by all writers on the subject since that time:

1. Retinitis centralis punctata diabetica. (An inflammation of the retina consisting of small punctate spots in the central region of the retina.)

2. Retinitis hemorrhagica diabetica, with resulting inflammatory, proliferative and degenerative changes.

3. A "pigmentary retinitis," a rarer form than the first two, concerning the etiology of which he is in doubt.

Hirschberg regarded the first two groups as being truly diabetic in origin, that Group 1 particularly was diagnostic of diabetes, and that when exudates and other lesions occur, at times, coincident with the punctate form, it might be due to a superimposed nephritis and these cases he would classify as a retinitis of mixed origin. He also conceded that the retinitis hemorrhagica

diabetica could be associated with arteriosclerosis of the smaller retinal vessels not usually demonstrable ophthalmoscopically. All of his cases were over forty years of age.

Friedenwald<sup>2</sup> in an admirable paper has tabulated all his cases of retinitis seen in private practice, diabetic as well as non-diabetic, having in mind especially those cases presenting the central punctate form of retinitis, and the justification for the term "diabetic retinitis" applied, by Hirschberg and others, to it. He suggested that diabetic patients who develop retinitis generally show in the early stages the punctate form, which may later coalesce into large masses. He found retinitis punctata centralis in thirty-three cases with diabetes, and in eighteen without diabetes, none of the latter presenting evidence of nephritis. He concludes "that the view is justified that retinitis punctata centralis, while not pathognomonic of diabetes is indicative of this etiologic basis, and when found in diabetes without nephritis, it may with propriety be designated as diabetic retinitis." He regrets, however, that as many of his cases were seen in private practice, a detailed study of the blood chemistry and renal function was not made.

Hirschberg and others claim to have found retinitis punctata centralis in the pre-diabetic stage, namely, in cases in which no sugar was found at the first examination, but at subsequent tests glycosuria appeared.

Wagner and Wilder<sup>3</sup> reported a study of retinitis in three hundred cases of diabetes. Twenty-two out of their series of three hundred cases had retinal lesions and only two of this number exhibited the punctate form of retinitis which Hirschberg regards as diagnostic of diabetes, and which Friedenwald claims is found more commonly in diabetes than in other conditions. Twenty-seven of Wagner and Wilder's cases were known to have had diabetes for more than three years and all were more than forty years of age. One showing the punctate form of retinitis had a blood pressure of 150. Eight out

Table 1.  
Forty-four Diabetic Patients with Retinal Disease (Milder and Severe\*)

Ophthalmoscopic Diagnosis	Cases	Age Below 40	Age Above 40	Diabetes Less than 3 yrs.	Systolic Blood Pressure Below 150	Phenolalcoolophthalein Excretion Below 30	Blood Urea Below 40 mg. per 100 c.c.	Between 30-40				Above 40			
								Between	Below	Above	Between	Below	Above	Between	
Hypertension Arteriosclerotic crisis	15	15	6	7	2	11	1	5	4	4	2				
Arteriosclerotic Retinitis	2	2	1	1	1	1	1								
Central Papilledema	2	2		2	1	1	1								
Diabetic Hemorrhagic Retinitis	9	9	2	7	1	6		5	2	2					
Vascular Hemorrhagic Retinitis	2	2		2	1	1		1	1	1				2	
Diabetic Albinimuric Retinitis	6	6		6	3	5	2	4			3	2			
Albinimuric Retinitis	2	2		2	2	2	2				2				
Total	38	38	11	27	9	29	4	6	12	6	9	8			
<i>Atypical cases:</i>															
Inactive Chororetinitis	1	1		1		1	1				1				
Hypertension of Optic Disc	1	1		1		1	1								
Optic Neuritis	1	1		1		1	1								
Pigmentary Retinitis	1	1		1		1	1								
Retinal Edema	2	2		1	1	1	2								
Total	6	2	4	4	2	6	1	1							

of nine patients with diabetic hemorrhagic retinitis had a blood pressure above 150. Table 1 shows the findings obtained by them.

The conclusions of Wagner and Wilder are: that "cases of diabetes with retinitis of diabetic type are almost always complicated by vascular or renal disease and the diabetes tends to be mild and chronic; and that the primary cause of the retinitis of diabetes seems therefore to be in the accompanying pathologic changes in the vascular system, the more essentially metabolic disturbances of the disease playing at most a secondary role." (Cataracts are not mentioned in this series, probably because changes in the lens often mask the retinal picture.)

Schobl<sup>4</sup> in describing a group of cases used the

symptoms peculiar to diabetes mellitus. In the first case he obtained hemorrhages along the retinal vessels. In the injection experiments the hemorrhages were accompanied by the destruction of many ganglion cells. Among the animals deprived of the pancreas he observed more severe hemorrhages spread through the different layers of the retina; the changes in the vascular walls were then evident even in the large vessels.

Little histo-pathological evidence has been obtained to differentiate between a retinitis of glycemia origin and that of a renal origin. Dufoin and Goning<sup>5</sup>, and also Morax<sup>6</sup>, emphasize this lack of proof. In this country the field is just as barren and without this data it is almost impossible to base a pathogenic conception.

Table 2.

Sixty Diabetics with Normal Retinae with  
Duration of Disease 4 Years and Over.  
(Selected from the Total 207 Diabetics with Normal Retinae)

Age Years at Examination	Cases Total No.	Arteriosclerosis in Peripheral vessels	Blood Pressure of 150 mm. and over	Diabetes Duration Av. in Yrs.
11-30	9	0	0	5.6
30-40	3	0	0	8.0
40-50	15	1	3 above 150 12 below 135	9.0
50-60	22	8	5 above 150 2 with 150	9.4
60-65	11	4	1 above 150 4 with 150	10.2
Total	60	13	15	8.6

term "albuminuric retinitis in the eyes of diabetics," and held that the lesions had no dependence on the existing diabetes.

Dodd<sup>7</sup> in a review of the literature up to 1895 collected forty-seven cases of "pure diabetic retinitis" basing his diagnosis solely on the absence of albumin from the urine. All of Hirschberg's groups were represented and eighty-seven per cent of the number were under 41 years of age.

The question may be asked: may not the tendency toward hemorrhages and the resulting proliferating retinitis find its explanation in a sclerosis of the finer retinal vessels with hyaline transformation of their walls, induced by the hyperglycemia *per se*? Orlando<sup>8</sup> attempted to answer this experimentally. He dipped frogs in a solution of glucose, injected rabbits and guinea pigs with sugar, and removed the pancreas from cats, inducing not only glycosuria but also other

Ophthalmoscopically and clinically, numerous writers have debated the reality of a diabetic retinitis as a well-defined morbid entity. Some, including Galezowski<sup>9</sup>, Dodd, Hirschberg, LaGrange<sup>10</sup>, and Friedenwald admit the independence of diabetic retinal lesions of which a glycemia is the causal factor. Others, including de Wecker<sup>11</sup>, Dianoux<sup>12</sup>, Foster Moore<sup>13</sup>, Wagner and Wilder, and Morax consider that the adjunct of nephritis or arteriosclerosis is able to produce the retinitis punctata centralis and the other exudative retinal lesions.

*Author's Investigation*.—This confusion concerning the specificity of retinitis in diabetes stimulated us to study, at the New England Deaconess Hospital, the retinae of diabetics in a limited series of Dr. Joslin's patients, in an endeavor to determine by a study of the blood pressure, renal function, urinary findings, and blood

chemistry, as well as the presence of arteriosclerosis in the peripheral vessels and in the retinal vessels, how many diabetic patients coming at random to the clinic presented a so-called "diabetic retinitis"—a retinitis in which only diabetes alone could conceivably play a rôle. We also sought information upon the value of sys-

group are 17 children, all under 16 years. We have discarded all cases with a duration of diabetes under four years, and present in Table 2 only those cases with a longer duration. This group consists of 60 cases with an average duration of 8.6 years, or 9.3 years for the cases of 30 years of age or over. We insert Table 2 here

Table 3.

## Diabetics with Arteriosclerosis of Retinal Vessels without Retinitis. 46 Cases

Age Periods Years at Examination	Total No. Cases	Arterio- Sclerosis in Peripheral Vessels	Blood Pressure 150 mm. and Above	Duration of Diabetes Av. in Years	Impaired Renal Function	Complications
30--40	1	0	✓	1.5	0	Onset during Pregnancy
40--50	4	1	2	8.0	0	Exoph. goitre 1 Otitis media 1
50--60	12	9	6	7.1	5	Amputation thigh 1 Bilateral Peroneal paralysis 1
60--70	18	15	12	9.2	8	Asthma 2 Angina pectoris 2 Amputation of leg 1 Tuberculosis (pulmonary) 1 Enlarged pros- tate 1 Otitis media 1 Heart block 1 Nephritis and angina 1
70--75	11	11	6	6.6	5	Toxic adenoma thyroid 1 Amputation foot 1 Paralysis ag- itans 1
Total	46	36	26	6.5	18	

## ✓Blood Pressure 120/80

tematic examination of the retinal vessels in relation to cardio-vascular disease and to gangrene of the extremities.

Our series includes three hundred and seven cases of diabetes. Patients have been classified according to ocular findings as follows: (a) normal, (b) arteriosclerosis, (c) retinitis, (d) cataracts, (e) changes in refraction, (f) other conditions.

(a) *Normal*—Two hundred and seven patients, or 67.7 per cent, of this series presented no abnormalities of the retina; included in this

because it is of value in comparison with those which are to follow.

Sixty patients, or 28.9 per cent of 207 cases with normal retinae, had had diabetes from 4 years to 23 years. Only nine of the 207, and these are included in Table 2, had a systolic blood pressure above 150 m.m. Hg.; eight had a blood pressure of 150; and of the remainder the blood pressures were all below 145. In other words, only 5 per cent of all diabetic patients with normal fundi had a systolic blood pressure above 150 m.m. Hg. Two patients alone showed im-

paired renal function, the highest blood non-protein nitrogen in these two being 45 mg. per 100 c.c. and the lowest phenolsulphophthalein excretion 30 per cent in two hours. Twelve of these patients showed sclerosis of the peripheral vessels, one of whom, Case No. 4721, age 59 years, had gangrene of the right foot requiring amputation, and another, Case No. 3260, age 65 years, had a thigh amputation. The blood pressures of these two cases were 170/80 and 150/80 respectively with normal renal function. The first mentioned had had diabetes nine years, the second four years.

(b) *Arteriosclerosis*—Where reference is made to arteriosclerosis of the retinal vessels without retinitis, it includes such findings as a wire-like appearance of the vessels, perivascular connective tissue changes, characterized by white marginal lines and kinking. This group includes only those cases which show changes in the vessels such as outlined above. We do not include those cases with minute hemorrhages, as these are placed under the term "retinitis." These are classified in Table 3. Forty-six or 14.9 per cent of the series presented arteriosclerosis of the retinal vessels. These do not constitute all the diabetics, however, who showed arteriosclerosis, as 16 others are included in the group with retinitis, and 11 in the group with cataracts where the retinae could be seen. If we did include these 27 additional cases, the percentage then showing arteriosclerosis would become 23.8 per cent.

Twenty-six patients (56.5 per cent) in this group of 46 cases had a blood pressure of 150 m.m. Hg. and above. If we consider the same age periods in Tables 2 and 3, we find that 57 per cent of the group with retinal arteriosclerosis had hypertension as compared with 29 per cent in Table 2. Thirty-six patients (48.2 per cent) showed sclerotic peripheral vessels, and again comparing the same age periods, we find 48.2 per cent with sclerosis of the peripheral vessels in the group with retinal sclerosis, and 25.5 per cent in the group of normals. The average duration of diabetes in the group (outlined in Table 2) for the ages 30 to 65 was 9.3 years, and in the group presenting retinal sclerosis for the same age period it was 6.45 years. Thirteen in the latter group showed impaired renal function as against two in the former (37.1 per cent against 3.9 per cent) for the same age period, namely 30 to 70 years. Altogether 18 cases, if we add the five cases for the ages 70 to 75 years, had impaired renal function in the group presenting retinal sclerosis.

(c) *Retinitis*—Sixteen patients (5.2 per cent) presented this condition. All gradations of retinitis are represented, from a few minute hemorrhages to an extensive exudative retinitis. Only two, Case No. 4674, age 56, with a hypertension of 220/120 and a large trace of albumin

in the urine, and Case No. 4234, age 75, with a blood pressure of 230/100, no albumin present in urine, with a blood non-protein nitrogen of 37 mg. per 100 c.c., and with evidence of peripheral vascular sclerosis, showed the punctate form of retinitis, which Hirschberg and others regard as typical in diabetic subjects. It is a coincidence that Wagner and Wilder in their series of three hundred diabetic subjects likewise found but two such cases. Whether or not our remaining fourteen cases with retinitis began with the punctate type and this later coalesced to form larger masses, is of course a matter for speculation. It is significant that the two such cases in this series had marked hypertension and evident renal damage. One of these, Case No. 4674, also had incipient cataracts of both eyes. All sixteen cases showed sclerosis of the retinal vessels, and no case was below 48 years of age. Only four of them had normal blood pressures. Case No. 2983, age 54, with a blood pressure of 108/68 had had an extensive retinitis of the left eye, of forty years' duration, due, he claimed, to zinc poisoning. He had a cataract involving the right lens and the fundus was not seen. This is therefore a doubtful case but is included in the number.

Only two cases in this group of sixteen cases of retinitis had normal findings apart from retinal vascular sclerosis with an accompanying retinitis; viz.—Case No. 4552, 48 years of age, duration of diabetes one year, with normal blood pressure and normal renal function. His retinitis consisted of a small hemorrhage to the upper and temporal side of the left disc. The other is Case No. 3036, age 48, with a normal blood pressure and normal renal function, duration of disease 2 years. His retinae presented small patches of exudate which were quite diffuse. Nothing abnormal was found in an examination of these two cases apart from slight sclerosis of the retinal vessels. That they are both very mild diabetics, if at all, is seen from the fact that Case No. 4552 had a fasting blood sugar of 80 mgms. and only when his diet was raised to carbohydrate 193, protein 77, fat 119, total calories 2071, did his blood sugar rise to 160 mgms. one and one-half hours after his meal. But once did he show trace of sugar in his urine. The second patient, Case No. 3036, was not a diabetic as all tests failed to prove any evidence of diabetes—all his blood sugars being normal—yet this case exhibited a diffuse retinitis. The remainder had either a marked hypertension or impaired renal function or both, with ages ranging from 54 years to 75 years. The average duration of diabetes in this group was 5.7 years.

(d) *Cataracts*—The most frequent pathologic findings in the series next to retinal arteriosclerosis was cataracts, which were present in thirty-two patients, or 10.4 per cent of the total number. Fifteen of this number had bilateral

cataracts, so far progressed that the fundi could not be seen. In five others with bilateral cataracts both fundi could be studied, and of these, two had normal retinae, two retinal arteriosclerosis and one extensive retinitis of both fundi. The remaining twelve had cataracts in one eye and a study of the fundus of the fellow

a hypertension of 160/90. Case No. 3686 had retinal arteriosclerosis with a blood pressure of 130/80 but active pulmonary tuberculosis was also present as a complication. Here again, as in Tables 3 and 4, cases showing retinal pathology to a large degree have hypertension, the percentages for Tables 3 (arteriosclerosis), 4 (ret-

Table 4.

Diabetics with Retinitis  
(16 Cases)

Case No.	Age at Exam. of Eyes	Duration of Diabetes Years	Blood Pressure	Arterio-Sclerosis in Peripheral Vessels	Albumin	Complications or Comment	Retinae
169	68	16	195/110	+	+++	Hypertrophied prostate Phthalein 5% N. P. N. 67	Diffuse white patches throughout both retinae. Arteriosclerosis
4473	57	0.3	200/108	+	+	N. P. N. 36	Retinitis proliferans left eye—corneal opacity right eye, fundus not seen. A. S.
4674	56	4	220/120	+	++++	Ulcers on foot	Retinitis punctata centralis both eyes. Fine hemorrhages and white patches. Incipient cataracts both eyes. A. S.
4734	71	0	162/85	+	Phthalasin 28	Amputation of leg. Gangrene	White patch to temporal side of disc of left eye. Nerve head blurred. A. S.
1092	63	11	120/70	sl. +	++		White patches to temporal side of left disc. A. S. both fundi of but moderate intensity.
4552	48	1	120/70	0	0		Small hemorrhage in left eye. Kinking of vessels in both. A. S.

eye gave the following findings: Normal 3, arteriosclerosis 5, retinitis 2, atypical cases 2.

No person showing cataracts in this series was under 53 years of age, the average age being 64.5. The average duration of the disease for this group was 6.6 years, varying all the way from one year to twenty years. It is worth noting from Table 5 that where the retinae could be observed and found to be normal, the blood pressure in these particular cases was also normal save in one instance, viz: Case No. 2606 with

initis), and 5 (cataracts) being 57.1, 68.7, and 83.3 respectively. In the table of normals, Table 2, we find that 15 per cent had hypertension. These values taken from the different tables are all for the same age periods.

A comparison of Tables 3, 4, and 5 from the standpoint of the association of the impairment of renal function and retinal pathology demonstrates that, of the cases of retinal vascular sclerosis, Table 3, forty per cent had impaired renal function, of retinitis, Table 4, seventy-five

per cent and among cases of cataracts with retinitis seventy-five per cent.

Joslin<sup>14</sup> states "that cataracts when they do occur in young diabetics, are found in those who have had the disease many years." In our patients with cataracts the youngest age at the onset of diabetes was forty-six, if we exclude Case

Case No. 4978, 18 years of age, with bilateral cataracts. The duration of her diabetes is 1.5 years. Another patient of Dr. Joslin's, a diabetic child of 15 years, has cataracts. He cites in his book<sup>14</sup> on diabetes yet another, Case No. 1898, who had cataracts at the age of 12 years, discovered at the detection of the disease, which

Table 4--Cont.

Case No.	Age at Exam. of Eyes	Duration of Diabetes Years	Blood Pressure	Arterio-Sclerosis in Peripheral Vessels	Albumin	Complications or Comment	Retinae
3036	46	2	120/70	0	0		White spots scattered through both retinae. Discs pale. A.S.
4725	61	1.5	150/85	+	+	Infarction of heart	Vascular hemorrhagic retinitis in left eye. Both eyes show A.S.
2045	58	8	190/115	+++	++++		One white star-shaped spot in left retina. Disc is pale. Albuminuric retinitis. Incipient cataract left lens. Myopia. A. S.
3539	74	6	190/110	+	++	Cardiac	Vascular hemorrhagic retinitis of right eye. Incipient cataract left eye, fundus not seen.
4209	64		140/90	+	+		Pigmentary retinitis. A. S.
4278	58	15	155/100	+	++++	Amputation of leg. Gangrene	Marked vascular sclerosis. Albuminuric retinitis. One large hemorrhage extending into vitreous.
4234	75	4	230/100	+	+		Retinitis punctata centralis; also exudates similar to nephritic retinitis. A. S.

No. 2983, whose onset was at the age of thirty-four, and the duration of the diabetes in his case at the time of the retinal examination was twenty years. He claimed his retinitis and cataract were of forty years' duration and due to zinc poisoning. The duration of diabetes in the first mentioned case was fourteen years at the time of the examination. The average age at the onset of diabetes in a group of cases with cataracts was 57.7 years.

Not included in this series but at the present time a patient in the hospital is a young woman,

was five months after the onset, and who died in diabetic coma three years later. Dr. F. G. Brigham tells us of another diabetic child, age 11 years, with bilateral cataracts, seen at the Massachusetts General Hospital. These certainly do not lend support to Dr. Joslin's statement given above that "cataracts when they do occur in young diabetics are found in those who have had the disease many years," and, as he agrees, demonstrates the advantage of the accumulation of modern diabetic statistics.

Gallus<sup>15</sup> reports 609 cases of cataracts in dia-

betics and non-diabetics comprising 410 men and 199 women. While stating that the most common ocular trouble among diabetics, chiefly among women, is cataract, he does not admit "diabetic cataracts" as an entity. He explains the condition on the basis of a premature senility and heredity with special emphasis on the former; that in women whether they be diabetic or not, this appearance of premature senility and also of cataracts is associated in 80 per cent of the cases with an early menopause. He says that

ogy of cataracts. Von Noorden<sup>16</sup>, Graefe<sup>17</sup>, Frerichs<sup>18</sup>, and Seegen<sup>19</sup> found cataracts in 13% (677 cases), 25%, 4.7% (400 cases), and 4% of their diabetic cases respectively.

E. Grafe, in a study of 1200 diabetics, writing in Von Noorden and Isaacs<sup>20</sup> volume on diabetes, agrees with F. Volhardts that all cases of retinitis, save the mildest, are accompanied by vascular changes, that every diabetic with hypertension of eight years' duration develops a retinitis, and that the retinal vascular changes are

Table 4--Conc.

Case No.	Age at Exam. of Eyes	Duration of Diabetes Years	Blood Pressure	Arterio-Sclerosis in Peripheral Vessels	Albumin	Complications or Comment	Retinae
3898	67	1	170/80	+	0	Amputation of left leg Gangrene	White spot to temporal side of left disc. A. S. *
4029	55	1	180/110	sl +	+	Carcinoma of Pancreas	Diffuse patch of exudate to nasal side of disc, left eye. Veins engorged in both. No hemorrhages. Arteries wire-like in appearance
2983	54	20	108/68	0	0	Mild diabetic	Extensive retinitis left eye forty years duration, due according to patient to zinc poisoning. Cataract right lens fundus not seen.



A. S.= Arteriosclerosis

the influence of heredity cannot be ignored and states that the parents of diabetics for the greater part die young, of apoplexy or of carcinoma, especially of carcinoma of the liver. He suggests that a study of the conditions, hereditary and degenerative, as manifesting themselves in the genesis of cataracts will reveal the key to these clinical phenomena. He cites the case of the severe juvenile diabetic who is particularly immune to cataracts.

Whatever may be said regarding the credibility of the author's views concerning the etiology of cataracts in the diabetic, we cannot subscribe to his statement that the juvenile diabetic is immune to cataract. If data could be obtained on the frequency of cataracts in a similar group of cases representing chronic nephritis, arteriosclerosis, and other conditions, then some inference could be drawn as to the relative parts played by these diseased conditions in the etiol-

indicative of similar changes in other vascular areas throughout the body.

He advises that insulin be used cautiously in cases of severe retinitis, though he does not give his reasons. He has found some improvement takes place with subcutaneous protein injections.

In the same treatise he refers to the "Zucker-star," the rapidly developing bilateral cataracts which occur in relatively young subjects with severe diabetes and that such cataracts appear as opaque striae and are subcapsular. He has seen only six such cases in his experience and considers them as pure diabetic cataracts, and that they may improve under proper treatment. He says that diabetics show cataracts more frequently than others of the same age and that such changes in the eyes of diabetics occur prematurely.

(e) *Changes in Refraction*—Twenty-two patients complained of a blurring of vision either

on admission or after the institution of insulin therapy. Not a few of this number sought a change of glasses—one patient having her glasses changed three times in as many weeks before her entrance to the hospital and previous to a diagnosis of diabetes. Two patients became temporarily blind just before entrance, or after entrance to the hospital. In all cases vision was restored when the disease and hyperglycemia were brought under control. It was our intention when this study was undertaken to reexamine all such cases, but it was found impossible to carry out this part of the program.

The cause of this disturbance in refraction is

to see how a change of 8 or 9 diopters, as has been reported, could be produced by a concentration of sugar in the blood, especially as experimentally a solution of sugar must have a concentration of 20 per cent to bring about a change in its refractive power of one diopter. This would mean that enormous amounts of sugar would have to be circulating in the blood stream, far above the highest known sugar value. (4) "The theory of lenticular changes. According to Duke-Elder, there are several considerations pointing to lenticular changes as being the basis for the occurrence of the hyperopia: (a) Eighty-one per cent of cases reported occurred

Table 5-A.

## Bilateral Cataracts—Fundus Not Seen.

Age Periods	Total No. Cases	Duration of Diabetes Av. in Years	Blood Pressure 150 mm. and Above	Impaired Renal Function	Arterio-sclerosis in Peripheral Vessels	Complications
50--60	4	2.1	3	2	2	Polycystic kidney 1
60--70	8	2.1	5	2	5	Amputation of leg, gangrene 1 Angina pectoris 1 Wassermann positive 1
70--80	3	11.6	0	1	3	

not definitely explained. A. B. Dykman<sup>21</sup>, in reporting four cases of a sudden marked increase of hyperopia, reviewed the literature on the subject and refers to some of the theories advanced to explain it. These are: (1) "Paresis of the accommodation. This would hold true in a certain number of cases. However, in the great majority of cases reported the greater percentage occurred during the age when the accommodation was not active. Also many cases develop a hyperopia greater than the range of accommodation would allow. (2) "Shortening of the antero-posterior axis of the eye due to loss of fluid in the vitreous. This does occur in the very advanced cases of diabetes and produces the soft eye of terminal diabetes. However, in this morbid condition the blood sugar is abnormally high, and if the hyperopia occurred in the milder cases, it would be with an increased blood sugar, whereas the hyperopia in reported cases occurs with a decrease in the blood sugar. (3) "The theory of an index change. It is difficult

between the ages of 40 and 60 years, the period of lenticular instability. (b) Elschnig<sup>22</sup> found the changes occurring in only one eye, the fellow eye having had the lens removed. (c) The occurrence of astigmatic changes in 36 per cent of cases suggests deformation of the lens. (d) The sudden yielding of the lens to osmotic forces dependent upon the water balance of the body. Although the lens is particularly resistant to change, it is possible that following prolonged assault it may give way to the changes in the water balance of the body; in other words, an osmotic force might be set up and following the laws of osmotic forces, fluid would flow into and out of the lens, dependent upon the amount of sugar concentrated in the blood. With an increased sugar content, the molecular concentration of the blood and tissue fluids would fall and the lens would be bathed in a fluid of a tension lower than its own molecular state. Consequently there would be a flow of fluid into the lens increasing the refraction and producing

myopia. The reverse holds true with a decreased blood sugar, thereby decreasing its refractive power and producing hyperopia."

The consensus of opinion today holds to the idea of lenticular changes, especially those due to changes in the water balance of the body as discussed in the preceding paragraph. In the absence of retinal pathology patients with refractive changes indicated by visual disturbances, such as blurring and temporary blindness, can be reassured that vision will be restored with proper control of their diabetes. They should be cautioned against a frequent change of glasses.

made above in this paper, observed these changes in the retinal vessels and stated definitely that the retinitis found in diabetics is the retinitis of arteriosclerosis and that the condition of the retinal vessels is a close guide to the condition of the cerebral vessels.

O'Hare and Walker state that in patients with evidence of sclerosis in the retinal vessels but with normal blood pressure, a careful history has elicited the fact of a previous hypertension and this probability should always be kept in mind. Nothing was developed from their observations to prove whether hypertension comes first and sclerosis second or vice versa. It is interesting

Table 5-B.

## Bilateral Cataracts—Both Fundi Seen.

Case No.	Age at Exam. of Eyes	Duration of Diabetes	Blood Pressure mm. Hg.	Arterio-Sclerosis in Peripheral Vessels	Albumin	Complications or Comment	Retinae
		Years					
4674	56	4	220/120	+	+++	Ulcer on foot	Retinitis punctata centralis. Hemorrhages and white spots
2606	69	10	160/90	+	0		Normal
4600	62	4	120/70	0	0		Normal
4640	60	2	180/100	+	++		Arteriosclerosis of vessels
3686	56	4	130/80*	+	0	Pulmonary tuberculosis	Arteriosclerosis of vessels

(f) *Atypical Cases*—Six of the series gave findings as follows:

Corneal opacities of both eyes from infancy, due to ulcers.....	1
Retinal edema, case of polycythemia.....	1
Glaucoma, optic nerve atrophy.....	2
Amblyopia (tobacco toxemia).....	1
Marked myopia from childhood.....	1

Since compiling our data our attention has been directed to an article on "Arteriosclerosis and Hypertension" by O'Hare and Walker.<sup>22</sup> Our findings are corroborative of theirs, which show a close relationship between hypertension and retinal arteriosclerosis. They suggest that this retinal sclerosis of the smaller vessels is probably indicative of a similar change in all the smaller vessels of the body and that a systematic examination of the fundi for the finer changes in the vessels is most important as offering light on other changes going on within the body. They demonstrate conclusively a lack of relationship between peripheral and retinal sclerosis and between peripheral sclerosis and hypertension.

Moore<sup>18</sup>, to whose article reference has been

to note that their cases were non-diabetics and are classified under similar age periods to ours.

*Comment*—We find that hypertension is a consistent finding in cases showing retinal pathology. It is much more commonly found in such cases than peripheral vascular sclerosis or impaired renal function. In contrast, among those whose retinae are normal and for the same age decades, a very small percentage showed even a mild hypertension or malfunction of the kidneys. Only one patient in the series showed a retinitis (one with only a small hemorrhage and with retinal sclerosis) which could be attributed alone to the metabolic disturbances associated with diabetes, or to some inherent condition which brought on a sclerosis of the retinal vessels. This patient was classified as a potential rather than true diabetic by Dr. Joslin. What rôle then does an increased blood sugar, a lipemia and ketosis play in the causation of retinal sclerosis and retinitis? In this series two-thirds or more gave normal findings in the retinae, a large proportion of whom have had the disease from four to twenty-three years, equally as long and of the same type

of severity as those showing pathology. That arteriosclerosis of the larger vessels is commonly associated with diabetes is seen from the numbers who come to this clinic with gangrene of the lower extremities. Is there any valid reason why the finer arterioles should not be involved in the process? And may not the retinitis have its origin right here? One will then ask why the

pertension, vascular disease and renal pathology—one, two, three, or all three combined—have been found in every case, in this study, presenting retinitis. And for the same age decades those with no retinal pathology with even a longer duration of disease are notoriously free from all three.

Probably in the future we shall learn more

Table 5-C.

## Unilateral Cataracts--Only One Fundus Seen.

Case No.	Age at Exam. of Eyes	Duration of Diabetes Years	Blood Pressure mm. Hg.	Arterio-Sclerosis in Peripheral Vessels	Albumin	Complications or Comment	Retinae
2046	58	8	190/115	+	+++		Albuminuric retinitis. A. S.
3539	74	6	190/110	++	++	Cardiac	Vascular hemorrhagic retinitis A. S.
2983	54	20	108/68	0	0	Zinc Poisoning 40 years previously	Extensive retinitis (Doubtful case)
4277	77	1	170/90	++	+		Hemorrhage into anterior chamber. Fundus showed arteriosclerosis.
640	60	14	168/80	++	+		Arteriosclerosis of vessels, moderate.
4570	53	2	170/90	+	Phthalein 38	Casts in sediment.	Arteriosclerosis of vessels.
4583	62	10	160/70	++	+++	Phthalein 20 N.P.N. 57	Marked vascular sclerosis.
3646	72	17	160/80	+++	0	Amputation of toe.	Arteriosclerosis of vessels.
4389	68	19	190/100	++	+	Infarction of heart.	Arteriosclerosis of vessels.
229	58	17	140/80	+	0		Normal, arteries smaller than normally seen.
4335	69	10	120/80	++	+		Normal.
4287	59	4	140/80	-	0	Pulmonary tuberculosis	Normal.

large group of diabetics with normal eyes? Why should these be spared although just as guilty diabetically? Would a histological examination of the retinal vessels of these apparently normal eyes reveal changes which cannot be demonstrated ophthalmoscopically? If not, are some people inherently more susceptible to this toxic process? Does diabetes give rise to arteriosclerosis, or vice versa? However much we may speculate along these lines, it is a fact that hy-

regarding the effects of ketosis on the vascular system from those clinics throughout the country which are studying the effects of ketogenic diets on the course of epilepsy. At the present time it is impossible to say from a clinical study whether the metabolic disturbances associated with diabetes can be the chief factor in the production of these vascular changes within the body. Certain it is that all our cases showing retinal lesions are associated with hypertensive-

cardio-vascular-renal disease, single or combined. We shall have to look to the field of experimental research for further light on the subject.

#### SUMMARY AND CONCLUSION

1. Among 307 diabetics ranging in age from 11 to 73 years, 207 or 67.7 per cent presented no abnormalities of the retinae, 46 or 14.9 per cent showed retinal arteriosclerosis with no other changes, 16 or 5.2 per cent exhibited a retinitis, all showing arteriosclerosis, and 32 patients or 10.4 per cent had cataracts. Of the cases with cataracts 11 showed arteriosclerosis of the retinal vessels. In 15 of the cases presenting cataracts no fundus could be seen.

2. Changes in refraction, indicated clinically by a blurring of vision and in two cases by a temporary loss of sight, were found in 22 patients.

3. Only two cases exhibited the punctate form of retinitis. Both had marked hypertension and renal impairment.

4. Hypertension is a consistent finding in cases with retinal arteriosclerosis and with retinitis.

5. A relationship, though not a very close one, between peripheral and retinal sclerosis and between peripheral sclerosis and hypertension was found.

6. The retinitis found in diabetics is that of hypertensive cardiovascular-renal disease. That diabetes plays but a minor rôle is seen from the fact that 207 of the patients had normal retinas, with accompanying normal blood pressures in 91 per cent of the number, and normal renal function in 98 per cent. Yet these patients have had diabetes of greater average duration and of no less severity than the cases with retinal changes. In cases of cataracts where a view of the fundi could be seen all found to be normal, the blood pressure was also normal. Of the 16 cases with retinitis, 75 per cent had hypertension and im-

paired renal function. The three doubtful diabetics in this group had normal blood pressures—these are included in calculating the percentage. Every case of retinitis had retinal arteriosclerosis.

7. If in a series of 607 diabetics (including the cases of Wagner and Wilder) only four are found with "Retinitis centralis punctata diabetica," the possibility of diabetes being the cause of this form of retinitis is remote. The two cases in this series had a marked hypertension and renal damage.

8. Is there a diabetic cataract? There appears to be no unanimity of opinion with regard to such a clinical entity, and until a systematic study has been made of a large number of cases, non-diabetic as well as diabetic, it is impossible to come to any definite conclusion on the matter.

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## ENDOCRINE HYPOFUNCTION IN EAR DISEASE\*

BY DANA W. DRURY, M.D., F.A.C.S.

THE accumulated literature of recent years dealing with the aspects of endocrine hypofunction is remarkable for the many contradictory findings recorded by the individual observers. Due allowance is rarely made for the changing degrees of malfunction comprehended between an incipient and a terminal state.

The widespread interest in and intensive study of the glands of internal secretion, while of relatively recent date, has caused a reconstruction of some of the most fundamental concepts of general biology. Further, hypofunction-

al states are of common occurrence in general practice and manifestations of slight nature are at times of the greatest value in diagnosing deficiencies. In incipient states, when changes are tendentious rather than established, careful and painstaking analysis is necessary to produce even the most tentative of diagnoses. The primary elimination of potential non-endocrine morbidity is of basic importance.

The morbid changes may develop so slowly and insidiously that neither the patient nor his friends become alive to the situation until some symptom manifests itself in an unmistakable manner. Where there is functional derang-

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ment due to glandular deficiency, the symptomatology in adults is one of general debility and lowered vitality. There is general asthenia, disinclination for physical work, and inability for concentration or mental activity. These states are further characterized by a lowered level of all the vital processes and may be demonstrated by certain trophic changes. The lowered metabolism affects the vegetative functions, possibly causing irritability and depression, itching skin, paresthesia, reflex gastric and intestinal disturbances, vague malaise, as well as indefinite muscle and joint pains.

It must never be forgotten that deficiency of any given hormone may produce manifestations far removed from the immediate focus of failure. As a potent regulator of the level of metabolism, the normal endocrine function is an essential for the maintenance of normal health.

It has been demonstrated that the single gland may manifest overactivities and underactivities at different stadia of its functional derangement. Dysfunctional types are also recognized, in which the complex function of the gland may integrate diverse activities of its several functional components. It is, however, the border line case that raises our particular interest, and, for the better understanding of the syndrome, as it affects aural practice, the following cases are correlated as to the presenting symptoms.

*Class A*—Three cases showing tinnitus, vertigo and more or less marked fatigability.

A-1—An eminent business man of forty-six years, who rowed on the varsity in college, who has continued this practice as far as possible in his later years, and who has taken the best of care of himself, complains that during the past two years he has noted more and more difficulty in hearing over the telephone. This he ascribed to the noises in the factory, but recently under quiet conditions he discovered that this explanation of his deafness was incorrect. He mentioned having an indefinite neuralgia in the left side of the face several years ago. At this time he was overworked and without proper exercise; he noticed a giddy head and pain darting into the left lower jaw on awakening in the morning. A left lower crowned molar was removed and this relieved him as far as the darting pains were concerned, but did not affect the giddiness or headaches. He found that he could help himself by rowing, which produced marked perspiration, following the exercise by a Turkish bath and rest. The persistence of the giddiness and indefinite headaches together with undue tendency to fatigue led to a tonsil enucleation. This operation he thought had very salutary effects on his health and seemed to clear his condition except for the high tone deafness.

The blood morphology showed a white count of 11,000 with increase of the neutrophilic elements and a 3% eosinophilia. Indican was increased in the urine, as was the residual nitrogen fraction. The basal metabolism showed -20% with a subnormal temperature and a depressed blood pressure. I might add that he showed a marked lack of tolerance to tobacco. His audiogram showed a depression above the ordinary speech area.

A tentative diagnosis of thyroid failure was made and he was placed on thyroid medication. The effect on the high tone deafness was improvement in the

right ear (deafness of shorter duration than in the left). The continuation of medication may show some change in the hearing acuity on the left ear.

A-2—A man in the early fifties, who fatigues very easily on the least exertion, is in many more affairs of life than is usual for one of his years. He is very nervous, is much under weight for his height, and has very little opportunity for any physical exercise. Together with the vertigo, he has a very disturbing tinnitus in both ears which does not seem to lessen under normal conditions. The vertigo comes over him in waves and at times is so severe that he is forced to lie down. He is not nauseated and sometimes on closing the eyes the head seems to clear. At others, however, this does not help. At times the vertigo is very indistinct and rather more like giddiness. He feels that his work is very much more of a tax on him than formerly and at times he has much difficulty in concentration. He never has any trouble in getting about, but does think that he is more short of breath than was formerly the case.

The examination showed a basal rate of -24%, with pulse of 68, and a normal temperature. The blood pressure was 168/60. He showed a definite eosinophilia and a lymphocytosis. The Barany test, both by the chair and the caloric method, showed active reaction. The residual nitrogen content of the urine was above normal. Beyond these points the general examination was substantially negative. The diagnosis was thyroid failure with the hypertension that so frequently manifests in the later stages of this condition. Following thyroid medication he improved very quickly, but as soon as he stopped medication, thinking himself quite cured, the symptoms reappeared with definite severity. He found that he had to use the medication as a food rather than as a medicine.

A-3—A short, thick-set man of sixty-three years, a very energetic character carrying on a responsible business, tells me that he does not see how he can continue the pace that he seems obliged to go. Each night on retiring he fails to sleep, his mental activity not allowing him to repose. With the morning, however, at the time when he should be up, he falls asleep. It is then very difficult to arouse himself sufficiently again to begin a new day. Many mornings he fears to get out of bed as he becomes very dizzy when arising. At times he is many minutes in getting to his feet. When the vertigo is more severe, the roaring in both ears seems less. He ascribes the lessening tinnitus to his increasing deafness. He no longer feels able to drive his car as the attacks of vertigo come on at no definite time and he thus fears an accident. He served two terms in the State Senate, but refused to run for a third term because of his seeming inability to concentrate on the work, although he thoroughly enjoyed his associates. The question of loss of memory is not a new symptom, but has bothered him at times for several years.

The physical examination showed a man with moderate degree of sclerosis but with no significant kidney changes. His metabolism was -23%, pulse 50, temperature practically normal, respiration 12. The blood showed lymphocytosis and an eosinophilia. He had one abscessed tooth and pyorrhoea, while the pharynx showed some red and oedematous lateral bands about the Eustachian tubes. The ears showed dull drum membranes with narrowed cones of light; the audiogram was characteristic of a dry otitis media.

Extraction of the abscessed tooth apparently lessened the size of the tonsil on that side in about three weeks' time. Thyroid medication was started and firstly the surging tinnitus became intermittent, troubling him mostly in the recumbent position. During the third week, under larger dosage, the vertigo diminished and he thought his ears felt clearer and

that he could hear more distinctly. He did not show, however, any improvement by the audiometer at this time. My explanation would be that the better ventilation through the Eustachian tubes and the intermittency of the tinnitus, together with the stopping of the vertigo, produced his impression of improvement. In about three months the pharyngeal wall had lost perceptibly its lateral bogginess. A later audiogram next showed a distinct improvement in the hearing curve.

**Discussion:** The occurrence of hypofunction in adults produces clinical manifestations allied to those of cretinism but necessarily modified by the fact that the patient has attained full stature and sexual maturity. Though the skeletal changes are absent, the metabolic disturbances are many times equally pronounced. If the condition has existed since childhood, the individual will probably be small, of poor physical development and low mentality. It is rare, however, that all the symptoms are present; more commonly not even a considerable number are noted in the same case.

Fatigue, disinclination for mental and physical work, particularly in the morning, is characteristic. Headache is generally worse in the morning and lessens as the day wears on, while giddiness is rather constant. Very often the more marked cases of insufficiency develop truly porcine countenances. The subject of hypofunction is never fit, he is generally tired, he finds his work a burden, and whether his employment is physical or mental, he requires a push before he can make himself take up his task. Again, his mental apparatus fails him, his memory is unreliable, he cannot recall either recent or past events, his attention wanders, his concentration is never at its highest when he wishes to solve a problem, and in a word, he is as sluggish mentally as he is languid physically. The tinnitus is very bothersome, pulsating in character, and increases as the day progresses. The individual resembles the neurasthenic, just as in his somnolence after taking food he reminds the observer of the lithaemic subject. A subnormal temperature is nearly always present, likewise the pulse is generally slow. Several of the cases (this group) seemed to have a lessened tolerance for tobacco.

**Class B**—Two cases presenting repeated colds, reinfections, headaches and definite neuralgias:

B-1—A woman, forty-six years old, who since girlhood has been subject to colds, varying in severity and without any demonstrable cause. In other words, what seemed at one time a preventive would not act on a second trial. At times the incidence seemed to be due to change of the weather, while again apparently one infection followed before the previous one had subsided. This close sequence of the infections caused her to consult many specialists as well as to try many cults and medications of one sort and another. There had been no recourse to surgical procedure, but the nose blocking and that of the Eustachian tubes led to a consultation regarding the sinuses. At the times when the Eustachian tubes were blocked, the tinnitus became very burdensome. For this she repeatedly had taken bath cures at the

various European spas, hoping only for relief as she had foregone the idea of a cure. An interesting point in her story was that in spite of all these infections, she never complained of wheezing, although climbing steps or grades produced a very troublesome palpitation. She stated that during the past two years her memory was less acute, but she had not connected it with her general complaint.

The examination was negative with the exception of a record of habitual constipation accompanied at times by marked indigestion. For the latter condition an appendectomy had been performed four years ago, but without apparent relief. She thought that the stasis of the intestines was more marked, but that constant horseback riding gave some benefit. Her basal rate showed a minus twenty per cent level with a subnormal temperature and a pulse of 68. The conjunctivae were pale, the skin dry and the outer part of the eyebrows were noticeably wanting. The blood pressure was 110/68. A Wassermann test was negative. The blood showed a lymphocytosis and an eosinophilia of five per cent. The urine showed depressed elimination and indican was much increased. The teeth were excellent; X-ray examination showed no periapical infection. The tonsils had been cleanly removed three years ago. There was no demonstrable adenopathy. The sinuses showed apparently thickened mucous membranes by X-ray, but the washings on puncturing the antra were clear. Both ears showed pallor with broken cones of light and a raising of the low tones by the audiometer. The Weber equal to both ears. The naso-pharynx was glazed and showed red, swollen lateral walls with some bands about the Eustachian tubes. Through the pharyngoscope mucoid secretion could be seen together with edematous tube entrances. A relaxed soft palate with a redundant uvula and a moderate varix of the lingual tonsil. A markedly furred coated tongue.

Under thyroid medication there was distinct improvement and resistance to respiratory infections perceptibly increased. The laboratory tests showed improvement also as to the metabolic rate and in the blood picture. After three months' treatment the lingual varix persisted, but caused no symptoms. The growth of hair on the eyebrow did not change.

B-2—A fifty-year-old male, appearing and behaving as one much older. For thirty years he had been an intensive worker in the business world, but had also spent some time in the open, either playing golf or on his farm. Six years ago he had an influenza infection followed by pneumonia. His recovery was slow; at present he feels that recovery was not complete, as buzzing in the ears is more pronounced than formerly and at times vertigo is rather marked, especially after a fatiguing day at the office. There has been some loss of weight, but he ascribes this to greater care with his diet and restriction in amount of food. Fatigue is very noticeable and on slight exertion he experiences a slight distress in breathing. His fatigue seems to be especially bothersome in the morning after a night's rest. Due to his work he travels a great deal on sleeping cars and his nights are not at all restful as was formerly the case. The tinnitus changes in character; at times it is high pitched, so high in fact that he believes his neighbor should hear it, then again it is quite like the incoming tide. This tinnitus has not affected his hearing, which is still very acute. He also remarked that he is more susceptible to colds, in spite of rigid precautions. During the past year he has been severely troubled with darting pain extending over the area of the fifth nerve, at times radiating into the right shoulder and right side of the neck. These attacks of neuralgia he can control by having his right sphenopalatine area anesthetized.

The physical examination showed both ear drums slightly retracted, Weber to both ears equal and a

negative Rinne. Both tubes were patent; the nasopharynx showed some secretion with reddened lateral bands, a relaxed soft palate and a coated tongue; the teeth were apparently negative. The left tonsil seemed ragged and the cervical gland on that side was palpable. The crypts, on suction, contained much detritus. The tonsils were enucleated, but improvement was very slow, in fact so slow that further investigation was instituted. The patient showed a basal rate of —23%, blood pressure 120/72, pulse 66, temperature 97°. The blood picture showed a lymphocytosis, while the urine contained indican and a high residual nitrogen portion. A tentative diagnosis of thyroid failure was established. Treatment was begun with small doses of thyroid daily on retiring and was followed through with several laboratory checks to determine the correct level of the medication. He showed definite improvement, the tinnitus disappearing as well as the vertigo. The attacks involving the fifth nerve have very much lessened in severity and frequency. This is probably explicable on the basis of the physical betterment and a diminution of nerve impoverishment.

**Discussion:** The greatest diversity of symptoms, seemingly unrelated and not referable to any common cause, are encountered in endocrine hypofunction. The action of the thyroid in affecting the general metabolism of the body explains the diversity of symptoms arising from its lowered activity. Constitutional tendencies may be made manifest in the general systemic disturbance resulting from glandular failure.

Hypofunction is sometimes described as general debility and is intimately related to the infections, both acute and chronic, to the lowered vitality following prolonged nervous and emotional strain, and as stated above, to constitutionally lowered vitality. The individual is constantly troubled with some sort of infection of the upper mucous membrane in spite of every effort to prevent it. They seem unable to develop any degree of resistance or immunity and consequently are a constant source of infection to their friends.

As to the headaches in the great majority of cases there is no actual pain, but an oppression, a constriction and heaviness of the head. Patients whose complaint is of headache frequently must be questioned at length before eliciting the admission that their trouble is such a sensation, causing extreme discomfort with a disinclination for work. The pressure is most frequently situated in, or rather behind, the entire forehead, extending downwards into the eyes and root of the nose, less frequently in the temples. The sufferers often have a sensation as though a board were firmly bound on the forehead. Pressure on the vertex and in the occipital region, on the whole, is less complained of. The sense of oppression extends as a band or hoop from the forehead over the temples to the occiput, as though an elastic band were stretched over the region. Oftentimes they feel the necessity of lifting the hat and replacing it lightly. The feeling of constriction may also include the entire head, the sensation arising as though the skull were squeezed in a vise. Again the head

is described as feeling hollow or empty. Sensations of unpleasant heat are common, those of cold less noticeable; throbbing, buzzing and booming are rather constant.

As a result of the hypofunction, the assimilation limits for galactose are raised above that which is essential to a normal metabolism. As a result of this lowered metabolism and temperature there arise the subjective symptoms of chilliness, cold extremities, and a desire for warmer or heavier clothing. In reality this instability may be due to the fact that at times the functioning of the thyroid gland is excessive, again it is deficient in the same individual.

**Class C**—Two cases presenting intermittent deafness, arthritis, psychic changes and neurasthenia.

C-1—A male patient in the early forties complains of excessive tinnitus in both ears, awakening him at night (he is a light sleeper), inability to hear as well over the telephone or radio as a year ago. He hears music, however, with ease, but is unable to sit through a symphony. The right shoulder is very bothersome, at times being stiff while at others it is only sore. Many of the muscles are sore, giving the feeling that he must have bruised himself. He seems as tired before entering the day's duties as he is in the afternoon, and if he remains at home for a day, the rest is not refreshing. He plays golf a great deal, but now is too tired to exercise in that way. He has cancelled several business trips during the past year as he could not seem to get enough energy to make them. This tendency to undue fatigue he thinks is due to his present inability to free himself from repeated colds. He has during the past two years tried many different suggestions but without even temporary relief.

Physical examination shows a well developed man, slightly overweight, with somewhat impaired lung capacity. The basal metabolism shows a rate of —20% with a slow pulse, somewhat lowered blood pressure and lowered temperature. The phthalein reaction is distinctly low, while the CO<sub>2</sub> is normal. The urine is scanty, elimination fair only, indican increased and residual nitrogen high. The blood morphology and chemistry are substantially normal. The tonsils are cryptic with red anterior pillars. The ear drums show broken cones of light. The teeth are negative to X-ray examination, while the mucous membrane of the nose is flabby, pale and over-moist. While this patient refused to have a tonsillectomy, thyroid medication has relieved him markedly. However, he probably would get greater relief if the tonsils were removed.

C-2—A lady of fifty-two years complains of deafness, which is increasing, stiffness and pain in the joints with swelling, coupled with a progressive fatigability. Of late psychic changes have been noticeable. Twenty years ago she had an attack of gout in the left big toe and since that time other joints have been affected. Apparently an acute process appears, the joint stiffens with relief from the pain, leaving the stiffness as a residuum. There has been an exacerbation in the past few weeks. The family history shows tuberculosis and cardio-renal conditions, together with a cousin with malignancy. Three years ago the patient had a transitory glycosuria. She was married twenty-six years ago and has had two pregnancies, both ending in miscarriage. The patient records none of the minor ailments of childhood, but reports jaundice at the age of five and a renal disease at the time of marriage. Has always

had a dry skin "because she does not take water." All the upper teeth were removed in 1918. She has had asthma for the past eight years. Prior to this she had hay-fever with seasonal regularity. She cannot eat berries, pineapple or spinach, although the skin tests made subsequently were negative, as were many other endermal tests. She has lacrimation of the right eye and the vision for intermediate distances leaves much to be desired. Dyspnoea, poor appetite, and sluggish bowels are recorded. Traveling makes her ill. She has had three attacks of cystitis. The menstrual history is negative, including an uneventful menopause four years ago. She complains of vertigo, which is most troublesome on getting out of bed or of quickly changing her position. She is easily frightened and worries much over trifles.

Physical examination shows a small woman with some tenderness back of the neck; the lower lids are somewhat puffed; the conjunctivae slightly reddened. There are few remaining teeth, in poor shape. The skin over the chest is tender and there is tenderness in all of her joints, many of which are stiffened through apparent deposits, and there is tenderness in the lumbar region. The urine shows a low volume, but the elimination and balance are good. Both leucocytes and blood discs are present in the sediment and the residual nitrogen fraction is high. The blood morphology shows a slight secondary anemia, a definite leucocytosis, the lymphocytes being relatively and absolutely increased. The blood chemistry is seemingly normal, but the uric acid is relatively high. Serological tests are negative. The phthalein and alveolar CO<sub>2</sub> are normal. The patient has lost 30 to 40% of the calculated lung volume. The basal rate is minus 25% with somewhat rapid pulse, the blood pressure definitely high. The remaining lower teeth show apical abscesses and the tonsils are cryptic. The X-ray examination of one hand shows destruction of the phalangeal joints. An audiogram shows a loss of both high and low tones. The eyes show enlarged blind spots. The patient has a partial hernia from severe coughing during the many asthmatic attacks. She says that her nutrition is poor due to the loss of her teeth, and that she has been told that this condition would account for the constipation.

The asthma was controlled by exhibiting adrenalin and pituitrin by mouth. The constipation was aided by acidophilus. The remaining abscessed teeth were removed. Under small doses of thyroid on retiring, her mental attitude has changed and improved. What the outcome regarding the arthritis may be I do not know, but later on it may seem wise to remove the tonsils.

**Discussion:** Symptoms referable to the nervous system and defective mental development are of constant occurrence. The mentality shows all grades of defect from stupidity or backwardness to the idiocy of the cretin. These conditions may be evident in the home or only demonstrated by various mental acuity tests. The normally functioning thyroid is seemingly indispensable for the development of normal mentality. In lesser grades of hypofunction, all gradations of mental retardation are encountered. The general tendency to somnolence, apathy, melancholic temperament and neurasthenia are characteristic. General nervousness and irritability is a common symptom, while constipation is very usual, due to deficient muscular movements of the bowels. There is seemingly an associated deficient secretion of the di-

gestive ferments. The condition results in a vicious cycle, for the toxæmia resulting from the intestinal condition imposes additional work upon the thyroid and depresses it, so that it becomes less and less efficient in correcting the intestinal condition. It does not seem to have been sufficiently impressed upon the minds of the profession at large that many of the symptoms of neurasthenia are merely those of dysfunction of the thyroid. There is found also a slowing of the entire metabolism and a diminution of the excitability of the whole vegetative nervous system. The trophic disturbances affect the skin, hair, nails and teeth especially, although many other parts of the body may show retrogressive changes especially the vascular system, which tends to be the seat of a premature arteriosclerosis. Many of these cases will show muscle and joint symptoms which superficially may be diagnosed as rheumatism. This is probably incorrect, as the distressing symptoms will clear as the case gets progressively better. The mental symptoms are fairly constant and in advanced cases may result in definite psychoses.

**Class D**—Two cases presenting eczema of the ear canals, intermittent deafness, vaso-motor disturbances and sensitivity.

D-1—Female, forty-two years of age, well educated and a housewife without cares or worries, complains of increasing deafness to high tones and fatigue that she cannot explain. During the past nine years she has never arisen in the morning feeling refreshed, although she sleeps nine hours nightly and also naps each afternoon. The tinnitus causes restlessness at the time of retiring and greets her on awakening. She frets over small matters and because of her deafness does not care to mingle with her friends as formerly. She is habitually constipated and has run the gamut of many different so-called cures for this ill. When she becomes excited, there is a sensation as of a curtain closing over both ears, which causes marked stuffiness in the head and an increase in the tinnitus. She thinks that during the past year the buzzing in the ears has lessened as her hearing has become more impaired. She coughs a good deal and takes infections much more easily than do the other members of her family. Her throat feels furred and at times she has to clear it before talking. The voice is husky much of the time and she also has noted that it is weaker and that she speaks with greater effort than formerly.

The family history is quite negative. Her own physical examination shows an obese woman, wrinkled and looking older than her true age would connote. The skin under the eyes is oedematous although it does not pit. She is very white and the extremities are clammy and cold to the touch. The teeth are negative by X-ray examination, while the tonsil region is clean, although both posterior pillars are thickened, red, and boggy, as is the posterior pharyngeal wall, which is bathed in a tenacious secretion. The soft palate is relaxed and the uvula is pale and touches the back of a coated tongue. The lingual tonsil is variced, the larynx pale but otherwise negative. The naso-pharynx shows a thin secretion over enlarged posterior inferior turbinates, bands about the tubes and flabby openings that fail properly to function on swallowing. Both drum membranes are pale and slightly retracted. An audiogram shows loss

of both high and low tones, especially in the conversational area. The Rinné is positive with the Weber to the right ear. The basal metabolism shows a rate of -20%, with pulse and temperature both subnormal. The blood pressure is 102/72. The serological tests are negative. The urine is negative except for a raised residual nitrogen fraction and generally poor elimination. The blood shows hemoglobin 70%, a leucocytosis and an eosinophilia of 4%.

The posterior ends of both inferior turbinates were reduced by a snare. This operation within two weeks aided her hearing. The patient then seemed to remain at a standstill; the laboratory examination showed the findings above noted. Small doses of thyroid nightly immediately showed their value. This treatment has been continued, the amount of drug necessary being indicated by the laboratory findings, with the production of a definite improvement.

D-2—A young married lady of thirty had suffered from defective hearing for two years. She noted that when a young child her skin was easily irritated and that her hair always had dandruff. She had been treated for eczema for many years. As she grew older she was backward in school and her father had her tonsils removed and glasses fitted, but she received little help in this way. Later on both ear canals were involved, the sensation of heat being increased by scratching. At times the skin would crack and a watery discharge followed from both canals. The condition persisted and finally through the narrowing of the canals deafness became more noticeable. She also experienced difficulty in breathing through the nose. This seemed to follow an influenzal attack and a protracted convalescence. The nose blocked especially in damp weather or from dust irritation. The discharge was always watery and thin. She also complained of a husky voice and considerable mucus collecting in the pharynx.

Both ear canals show a red skin covered in places with white scales. The openings are very narrow and the drum membranes very difficult to examine. The lobules of both ears as well as the concha were cracked, moist and red. The nose shows enlarged boggy, pale turbinates bathed in thin secretion. The septum is pale and slightly deviated to the right. Both posterior ends of the turbinates are enlarged and the lateral walls of the pharynx are red, oedematous and covered with secretion. The skin is dry, the hair thin and under both eyes seems to be pouchy. The basal rate was -24%, pulse 64 and the temperature subnormal. The local treatment to the ears and nose was augmented with nightly doses of thyroid gland. In this case larger doses were essential to produce the desired effect than in any of the other cases. It also was necessary to continue the medication without interruption.

**Discussion:** Infiltration is perhaps the most characteristic sign and in advanced cases gives rise to changes in practically all tissues. Thickening lips, lids, skin, mucous membranes are noted and the peculiar substance which infiltrates these tissues is of unknown chemical composition although sometimes classified as mucoid. It infiltrates these tissues, the connective tissues of the skin layers and muscle tissues of the organs. It does not pit on pressure and often manifests itself only for a part of the day. The bodily weight is increased, and certain areas may be more affected than others. A sudden increase of weight without obvious cause should make one at once suspect some thyroid disturbance. The temperament, I think, is associated with a tendency to obesity, while the hair is scanty and

the outer third of the eye brow is often times very thin indeed, and the nails are very brittle and split very easily.

#### SUMMARY

In a period of the past fifteen years much of the structure and point of view of physiology and functional pathology has been revised and reconstructed on the basis of the probable influence of the internal secretions. The greatest diversity of symptoms, seemingly unrelated and not explainable except by means of endocrinology, are encountered in dysfunction of the thyroid gland. It is at once obvious that the controlling factor may be either chemical or nervous in origin. In other words, the internal secretions may produce their own control by chemical balancing, or the control may be from the central nervous system. This is perhaps the explanation why hypofunction is more often seen as a sequel to an illness, worry and similar harmful processes than as an apparent spontaneous incidence. The great majority are those cases in which the hypothyroidism is one of lesser degree and in which many of the grosser signs and symptoms are not in evidence.

Every day brings to our knowledge fresh evidence of the vital influence that the functions of the glands of internal secretion have upon the general bodily and mental health. It is justifiable to assume that the strain inseparable from modern civilized life is likewise able to produce endocrine imbalance, although the causative factor must operate over long periods of time. The prevalence of infections of various kinds, and the frequency with which an individual living under modern conditions succumbs to a chill or other disorder not definitely diagnosed, are factors which have to be reckoned with when considering the etiology of cases of hypofunction. Many of the signs, therefore, are so slight as to require the most minute study and the most careful observation for even tentative evaluation. Thus the family history is very important, while in younger people it may be even necessary to examine the parents. This should not be construed as implying direct transmissibility. Constitutional tendencies are, however, important.

These complex involvements account for many of the cases of general debility and run-down conditions, which certainly form one of the most numerous groups met with in practice. The similarity in general appearance of cases of well marked hypothyroidism and senility has frequently been noted, in both the psychic and physical features of the two conditions. The characteristic mentality of the aged, with the loss of memory, tendency to somnolence and lack of grasp of difficult or complex matters, has its counterpart in that of marked hypofunction. The impaired hearing, tinnitus and vertigo, dry and scanty hair, and arteriosclerosis, of the one

are likewise characteristic of the other. There is a pathological old age, setting in prematurely or associated with distinct accentuation of the cachexia. A moderate normal mental activity is necessary to the prolongation of life, the importance of excessive emotional and psychic activity in causing senile changes will probably be doubted by none.

In special practice the changes are most interesting and worthy of notation. The characteristic swelling invades the mucous membranes, the membrane of the mouth assuming a whitish color, while that of the larynx leads to alterations of the voice. These cases do not have a resonant voice for singing. The swelling of tonsils and uvula makes nasal breathing very difficult, if not almost impossible. Nasal operations do not benefit individuals when the nose is involved. The patients breathe with the mouth open and usually snore. This fact may have a direct bearing on the seeming frequency of cavities in the teeth, especially at the gum line. The Eustachian tube and the tympanic cavity usually become involved by the swelling, causing a diminution of hearing, especially in the normal speech area. The tinnitus of these cases may be explained by infiltration of the eighth nerve, and I have observed, also, that many times these cases complained of hallucinations of hearing, which is probably explained by loss of vascular tone and imperfect circulation. Vertigo and loss of equilibrium on slight provocation are sometimes met with. In the most marked cases of hypofunction, especially in young children, changes in the contour of the auricle are noted, while the external canal is narrowed and the skin very much thicker than normally found. Oftentimes the joint of the jaw is markedly relaxed by the stretching of the ligamentous structures, and this symptom is often seen in the

other joints of the body. They are often termed "double-jointed" people. The adenoid material is often more boggy and certainly has more fluid in its content. I have noted that removal of the growth is helpful, but it is not always sufficient to give entire relief. In these cases several operators will have a hand in rotation, due to the fact that the difficulty of breathing is from the swollen mucous membrane. Here thyroid medication is indicated rather than surgery.

Emphasis should be laid on the fact, however, that thyroid medication is indicated only in those cases where thyroid failure has been demonstrated. In the cases given in the body of this article, a diagnosis of thyroid malfunction was established before medication was initiated. It is a specific replacement therapy, not a general panacea. In my own series, I have a group of pituitary cases, diagnosed as such and exhibiting improvement with the extract of the anterior lobe, that parallel the thyroid group here discussed. A non-specific endocrine therapy would have been wholly ineffective in either of these groups. This fact has been demonstrated to the point of conviction.

#### CONCLUSION

In the conditions discussed there is no structural defect, but a functional derangement due to glandular deficiency.

Latent forms of hypofunction are of greater frequency than is generally believed.

Tonics simply increase the appetite and digestive capacity in the belief that lack of strength results from some primary lack of nutrition.

In all these conditions, however, the treatment must be administered continuously in order to prevent reappearance of symptoms.

## BOSTON CITY HOSPITAL STAFF CLINICAL MEETING

February 26, 1927

### POSTERIOR GASTRO-ENTEROSTOMY

**END Result of Posterior Gastro-Enterostomy for a Large Duodenal Ulcer Close to the Pyloric End of the Stomach in a Woman 73 Years of Age.**

**DR. WILLIAM REID MORRISON:** The first patient I wish to discuss had had typical symptoms of peptic ulcer for twelve years, for which she had been treated medically. Her chief complaint was vomiting and pain in the pit of the stomach, with considerable gas and distress. There had been no fresh or changed blood vomited. She vomited regularly four or five hours after each meal. This patient had lost weight steadily, even though on a diet, until she was very much emaciated, having lost seventy-four pounds. Her weight at the time of operation

was only seventy pounds. There was a mass in the epigastrium the size of a small orange, which had been diagnosed as a probable carcinoma of the stomach. Roentgen ray examination of the stomach with the barium meal showed almost complete retention at six hours, with an obstructing tumor at the pylorus.

At operation, under ether anesthesia, a mass the size of an orange was found, fairly completely blocking the distal end of the stomach. General abdominal examination was otherwise negative. A posterior gastro-enterostomy was performed, and to date she has regained seventy-six pounds in weight, her weight now being one-hundred and forty-six pounds. The patient has been x-rayed repeatedly subsequent to operation, and practically all food goes through the new opening in the stomach. She has had complete

relief from all symptoms, and she can eat a normal diet.

The point which I wish to bring out is that although many tumors of the upper abdomen are considered inoperable, I think these patients should be given the benefit of an operation, and posterior gastro-enterostomy, if necessary. If only one out of one hundred had, as this woman evidently did, an old obstructing ulcer, it is worth doing.

#### DOUBLE INTUSSUSCEPTION

DOUBLE Intussusception of the Proximal Jejunum just below the Ligament of Treitz, Causing High Intestinal Obstruction Ten Days after Gun Shot Wound Involving the Anterior and Posterior Walls of the Stomach, Pancreas, Spleen, Diaphragm and Lung.

DR. WILLIAM REID MORRISON: The second patient I wish to present is a girl twenty-two years of age who was shot in the epigastrium. The wound of exit was below the inferior angle of the left scapula. She was seen three hours after the injury. Her pulse was 140 and she was in considerable shock, vomiting basins full of fresh and clotted blood. She was treated for shock. She had a board-like belly, and, at operation through an incision in the left upper rectus muscle, a perforation of the anterior surface of the stomach was found. This was sutured with purse string gastro-intestinal sutures of number two catgut. An opening was then made between the stomach and colon into the lesser peritoneal cavity, and a perforation of the posterior wall high up near the cardiac portion of the stomach was found. This was sutured with great difficulty with purse string sutures of catgut. On exploring the left upper quadrant for further injury, there was a gush of blood from the region of the spleen, so a transverse incision was made from the lower end of the original incision along the left costal margin. The bullet had gone through the tail of the pancreas, and injured the splenic vessels, perforating the spleen at the hilum. The spleen was removed, transfixing the splenic vessels with number two catgut. The wound in the diaphragm was not bleeding so nothing was done to it. A cigarette drain was carried down to the tail of the pancreas and carried out under the left costal margin. The wound of entrance was debrided, and a cigarette drain inserted to the peritoneum. The wound of exit was dressed also. The patient was given 1000 cc. of subpectoral salt solution on the operating table, and subsequently an indirect whole blood transfusion of 400 cc. from a Group IV donor, using a platinum needle in the donor's basilic vein and cutting down on the recipient's basilic vein.

The patient had a little pleurisy in the left chest on the third or fourth day, but this cleared up and she did well for ten days after operation,

with no elevation of pulse, temperature or respiration. She then started vomiting basins full of bile, with no pain or abdominal distress or distention. I thought that she had a high intestinal obstruction from an adhesion or band. To locate the obstruction, half the average amount of barium was given by mouth, despite the teaching that barium should not be given in the face of intestinal obstruction. The x-ray picture showed that the barium filled the stomach and the four parts of the duodenum, but stopped in the vicinity of the ligament of Treitz, with very little passing through into the jejunum.

At operation through a high right rectus incision, I found a double intussusception of the jejunum just below the ligament of Treitz. The proximal bowel had been ingested by the next loop of the jejunum, and both had been engulfed by another distal loop of jejunum. I thought at first that the patient had swallowed some gauze which had distended her small bowel. The outer layer of bowel was disengaged easily, but there were many adhesions between the innermost and next outer layer of the intussusception. These adhesions were separated by scissors, and the innermost loop of jejunum was pulled out. The affected jejunum and its mesentery appeared viable, although dark red in color.

The patient did very well subsequently, and was discharged two weeks after the second operation. I found nothing to cause this double intussusception other than some adhesions, possibly as a result of the gun shot wound. Its unusual position is of interest, as well as the fact that it was a double one. High intestinal obstruction, with no abdominal distention and no pain, is very misleading and is easily overlooked if x-ray pictures with the use of barium are not employed.

#### IMPENDING DIABETIC COMA SIMULATING ACUTE APPENDICITIS

DR. W. R. OHLER: This patient is presented because of the interest to both surgeons and clinicians. She is a representative of the Out-Patient Diabetic Clinic. She is thirty-five years old, a severe diabetic who gets along fairly well on eighty units of insulin a day. She has been in the hospital on numerous occasions, but the hospital admission which interests us now was on the twenty-second of March, 1925. She was admitted to the surgical side complaining of acute abdominal pain, associated with persistent vomiting. The attack of pain and vomiting came on in the afternoon of the day previous and had persisted from that time. On examination she presented a somewhat distended abdomen with more or less spasm everywhere, but much more marked in the right lower quadrant. The whole abdomen was somewhat tender, but the pain was more severe in the right lower quadrant than anywhere else. She had a tem-

perature of 99.4 and a white count of 15,000. She was seen by a visiting surgeon who made a diagnosis of surgical belly, but in view of the fact that a urine specimen showed large amounts of sugar, diacetic acid and acetone, it was decided not to operate until the following morning. The patient was put up in high Fowler position, was given fluids under the breast and glucose by rectum, and in addition received 150 units of insulin during the night. At the time of admission her blood sugar was 500 milligrams, but next morning this had fallen to 150 milligrams, and at the same time all of the symptoms suggesting a surgical belly had disappeared. Needless to say no operation was performed. Complications similar to the above occur not infrequently in diabetes. In other words, the symptoms and signs mentioned above were those of impending diabetic coma. The surgeons made an error in the diagnosis, but they were absolutely right in the treatment. If a patient comes in with a questionable surgical condition, and there is also evidence of impending diabetic coma, it is advisable to wait. The only time when operative inference is justifiable in the presence of impending coma, is when there is a perfectly obvious surgical condition requiring immediate treatment. The differential diagnosis is often difficult, but there are some points which help. In abdominal pain due to diabetic coma, or beginning diabetic coma, the pain is almost always generalized, and it is rather difficult to put your finger on one particular spot. Furthermore, there may be a certain amount of general spasm, but it is difficult to pick out an area of localized spasm. Finally, the skin of the patient is generally dry and not moist. To my mind this is a most important single point in the differential. In this particular case the patient was dehydrated and parched; she presented the typical skin of a diabetic coma, not that of a surgical belly.

**DR. D. D. SCANNELL:** What is the relation between the impending diabetic coma and the white count?

**DR. OHLER:** That I don't know; I see no reason why the white count was up. The temperature was 99.4, which is perfectly consistent with diabetic coma.

#### SUBACUTE BACTERIAL ENDOCARDITIS

**DR. M. FREMONT-SMITH:** This patient is a woman of 32 with a negative past history. She has had no sore throats. She had, ten years ago, the first of two attacks of rheumatic fever, and four years ago a second attack. She had been told that she had a rheumatic heart, but had no symptoms of heart trouble—no dyspnoea and no pain. Three months ago she suddenly developed pain in her left hip which kept her in bed four days, and, from that time on, felt weak

and out of sorts. Two months ago she had an attack of pain in her right hip. Her doctor told her she had rheumatism and anemia, and sent her into the hospital. On admission she showed fever, rapid pulse, evidence of mitral rheumatic heart disease, an enlarged palpable spleen, tender finger tips and a question of petechiae. On the basis of the findings a diagnosis of subacute bacterial endocarditis was made. The hemoglobin was 75 per cent, the white count 8,000 to 12,000 and the urine negative. While she was in the wards definite petechiae appeared in the conjunctivae. She developed pain first in the left costovertebral angle and later in the right, accompanied by albumin in the urine. One blood culture out of three was positive for *Streptococcus viridans*. She has run a fever, not constant, but recurring.

Subacute bacterial endocarditis is not infrequently mistaken for rheumatic fever or rheumatic heart disease with fever, sometimes for typhoid, and even for acute nephritis. The symptoms of the condition may be either elusive—simply fever and loss of strength—or they may be the result of emboli in different parts of the body, and so may be definite and very various. Cases may be considered nephritis because of albumin, casts and blood in the urine, the result of emboli in the kidney. There may be cerebral emboli or emboli in the retina; or there may be infarcts into the spleen, with the resulting symptoms. Evidences of arthritis as the result of emboli are not infrequent. Blood cultures may be positive, but for long periods there may be no positive culture. The condition is usually grafted on an old valve injury, the result of rheumatic infection, or syphilis, and may occur in the presence of congenital heart disease.

**QUESTION:** What was her white count?

**DR. FREMONT-SMITH:** Her white count was 8,000 on admission and went up to 12,000. The white count is important in diagnosis, as it may take rapid swings, go up to 24,000 and then fall to normal in a few hours. During the stage of leucocytosis one may find in the smear swarms of endothelial phagocytic cells sometimes containing red cell inclusions.

Subacute bacterial endocarditis shows the following features: marked anemia, clubbed fingers, tender fingertips and tenderness over the sternum, splenic enlargement, blood in the urine, other evidences of emboli, such as petechiae, arthritis, pain in kidney or splenic areas, or cerebral lesions, and usually fever. Fever is at times absent, and blood cultures often positive for non-hemolytic streptococci are sometimes negative. Some patients recover.

#### TERATOMA IN A GIRL 19 YEARS OF AGE

**DR. FRANK S. CRUICKSHANK:** This case presents an interesting postoperative as well as pre-operative study and should therefore prove interesting to both surgeons and medical men.

A girl of 19 entered the Medical Out-Patient Department, May 27, 1926, with chief complaints of swelling of the abdomen, nausea and vomiting. The family history and past history were unimportant. The history of the present illness was of little assistance to us, having its onset a month previous to entrance with ill-defined pain in the back and in the right lower abdominal quadrant. Swelling of the abdomen was then noted and this increased to an enormous size. Nausea and vomiting first occurred two days previous to entry and during this time the patient had been unable to retain anything whatever in the stomach. Nothing in her history seemed to offer a cue to the diagnosis. On physical examination the presenting signs were temperature 102, pulse 128, flushed cheeks, moderate dyspnoea and enormous distention of the abdomen which latter was readily demonstrated to be due to uncomplicated ascites. There were a few signs in the apex of the left lung posteriorly, namely, dulness, distant bronchial breathing and increased tactile fremitus and whispered voice. There were no râles. These signs, apparently those of an inactive process in the apex, were the only ones which would fit with the abdominal condition and permit a single diagnosis. Nothing was palpable in the abdomen and, what is possibly of greater importance in cases of marked ascites, no ballotable masses were present. A tentative diagnosis of tuberculous peritonitis was made despite the fact that we could not reconcile the great amount of fluid present with the diagnosis. The patient was referred to the House for study. Here the diagnosis was tentatively confirmed by medical and surgical consultations and it was decided to do a laparotomy with its benefits in tuberculous peritonitis in mind.

On operation a large tumor, 12x14 inches, was found. It was multilocular and cystic in appearance and weighed about 10 pounds. Its attachment was by pedicle to the left tube and ovary. The mass was removed and the pathological report was teratoma. No other pathology was found at the time of operation.

It was, of course, felt that the patient would now do well and have an uneventful recovery, but within a short time signs of ascites again appeared and on June 30, 16 quarts of straw-colored fluid were withdrawn. Again on July 3, 12 quarts of similar fluid were removed. The patient was given deep x-ray therapy and appeared to do well. There was no further accumulation during her stay in the hospital and she was discharged on August 4.

We were confronted with recurring ascites with the obvious cause apparently removed. With no metastases in the abdomen, in the absence of tubercles and papillary cysts and with a physical examination which presented nothing new, the diagnosis was a matter of speculation and the development of new signs only could definitely settle the question for us.

The patient returned to her home in Nova Scotia and through a family with whom she lived in this city the name of her last attending physician was obtained. He was kind enough to write me as follows:

"Shortly after her arrival (early in September) I was called to her home. Her general condition was not good. Her abdomen was greatly distended. Her pulse was 120 and temperature 101°. Two days later her condition was somewhat better—temperature normal, but suffering greatly from distended abdomen. At this time I removed about 10-12 quarts of straw-colored fluid. She seemed to feel better for a few weeks and then she took worse and gradually grew weaker. Her pulse was now running 140-150. She was unable to keep anything solid or liquid in her stomach. We tried to feed her with nutrient enemata unsuccessfully. The fluid did not collect again. The inguinal glands were enlarged and there was a definite tumor mass which was quite palpable in the lower left abdomen. Mass seemed to be quite hard, irregular and about the size of a small cocoanut. Patient died November 29, 1926."

But for the follow-up and the careful observations of a family physician in a small town in Nova Scotia a diagnosis of metastatic teratoma could not have been established with certainty, however logical such a diagnosis might seem to be. The case is interesting medically as an uncommon cause of recurring ascites, emphasizes the rule that one diagnosis should always be sought in explaining a given group of symptoms, and should serve to remind us that even large tumors, in the presence of great amounts of fluid, may be obscured by the latter and that much fluid may, in a purely mechanical way, render our routine methods of physical examination valueless. It would seem that all cases presenting massive ascites should be examined in the knee-chest position in an endeavor to anticipate and exclude from the physical examination any error of mechanical origin.

I am going to ask Dr. Morrison to tell us anything he may remember about this case.

**Dr. WILLIAM R. MORRISON:** This woman's abdomen was enlarged to the size of twins and was very tense. Since there was in all probability a tuberculous process in the lungs we felt it would be best to operate under novocaine. Everything was obvious on opening the abdomen and a careful exploration revealed no other masses. There was no shock to the operation. I thought we had cured her, for we had removed the apparent single cause of the condition, but she filled up again and again. There was freedom from signs and symptoms while under x-ray treatment, and, while under our observation, the fluid did not reappear.

Dr. Cruickshank is to be congratulated on following this case and obtaining the end results.

### RESULTS ON SUTURING OF TENDONS WITH CATGUT

**DR. THOMAS K. RICHARDS:** Here are three cases of tendon suture. Most of the teaching about tendon suturing has been to use silk or linen thread. Having had trouble with silk once, when the wound became infected, following an acute gall bladder attack, and silk had to be picked out of the wound for the next two years, non-absorbable sutures were discarded and fine chromic catgut used instead. This method is based on the principle of tendon repair, namely that approximation of peritendineum to peritendineum will result in new tendon formation in about 10-14 days, and that the resulting new tendon will be stronger than the fibrous tissue scar formed from adjacent connective tissue structures at this time. In other words, if motion is started in 10-14 days, the repair of the tendon will be strong enough to allow the tendon to be pulled away from the sheath. The follow-up treatment consists of massage and motion, care being taken, in the early stage, to avoid the pull of the opposing muscles.

Two of these cases are rather unusual tendon injuries in that they are traumatic breaks of the Achilles tendon. One occurred in a squash player. The operation was delayed ten days to allow the acute inflammatory reaction to quiet down and then the tendon was sutured with No. 0 chromic catgut (intestinal suture). The other Achilles tendon ruptured as the man stepped forward off a curbstone. Here again operation was delayed about ten days.

The first case was sutured a year ago. He was under treatment with massage and exercises for about a month following the suturing and then returned to his work.

The second case was sutured in the early part of December of last year and was discharged in the middle of January, at which time he had complete motion in the ankle joint. The Achilles tendon is wide and is perfectly free.

The third patient, a cabinet maker, injured his right wrist when he was struck by a loose drill in a press. The wounds were sutured at this time, and then he was treated with massage and baking. At the end of four months he was still unable to use a saw or hammer, as he had no power in the wrist or thumb. A diagnosis of rupture of the long extensor tendon of the thumb was made. At operation a four inch gap between the two ends of the extensor longus pollicis tendon was found. After lengthening the two ends, they were sewed together with the thumb well extended, No. 0 chromic catgut being used. Ten days later the stitches were taken out, and motion and massage started. He still has a little disability in extending the proximal joint of his thumb, but is back at his trade of cabinet worker, the power in his wrist having returned.

### PITYRIASIS RUBRA PILARIS

**DR. W. P. BOARDMAN:** This disease has been described under the names of lichen ruber and lichen acuminatus. It is now generally known as pityriasis ruber pilaris.

This patient is a Jewish American woman, 18 years old, with a negative family history and a negative past history. A month before coming to the hospital she noticed scaling on the hands followed by scaling on the feet and other parts of the body. The only subjective symptoms have been tightness of the skin and moderate itching. The lesions start as follicular plugs, with a keratosis dipping down into the hair follicles, causing a minute papule and giving the appearance of goose flesh. From the center of each follicle, comes a hair which is often broken off leaving a black dot. As the lesions coalesce, we get scaling and erythematous patches, and, in some of these patches, as in the folds of the elbows, follicular papules can be seen. In other patches, this characteristic is lost, and they are covered with branny, adherent scales. On the scalp, it has the appearance of a seborrheic dermatitis. On the elbows and knees, the scales are larger and adherent, and there were bleeding points where the scales were removed. These were quite typical of psoriasis and caused us to make the wrong diagnosis. Very soon, however, the follicular lesions, which give a nutmeg-grater feel to the skin, appeared. The palms and soles show a keratosis, though there are no hair follicles there. On the soles, this thickening has been likened to a sandal.

The blood and urine show nothing abnormal. The metabolism is slightly low ( $-10$  and  $-20$ ). Outside of the skin lesions, she is a normal healthy girl.

This disease usually occurs in young people. It is more common in males than in females. Pathologically, the changes are in the epidermis, which shows slight inflammatory reaction around the keratotic plugs which fill the hair follicles. In the corium, there are usually inflammatory changes. The association with tuberculosis has been mentioned by some authors, but nothing definite has been found to associate it with the disease, and the fact that most of the patients remain healthy for years is against it. Prognosis for clearing up the lesions is not good. Many have exacerbations and remissions. At times they may become entirely clear, but, almost invariably, the skin lesions recur, and, in many cases, become generally distributed.

The disease lasts for many years, but the general condition remains excellent. In some of the cases with a general distribution there is a lowering of physical condition; and, in rare cases, the patients die. Two cases have been reported which have remained clear for five and nine years respectively. In the latter case the pa-

tient contracted syphilis nine years ago, and the lesions disappeared at that time.

The treatment is very unsatisfactory. Arsenic has been tried, as in most of these chronic conditions, but without any apparent effect. Arsenic in combination with protiodide of mercury has been tried. X-ray has given fairly good results.

On this patient we are now trying general applications of the quartz lamp, and she is doing much better. Whether the improvement is due

#### RESULTS ON FRACTURES OF THE CARPAL SCAPHOID

DR. JOSEPH H. BURNETT: This patient first injured his hand on January 17th and consulted this hospital on January 29th, at which time he was x-rayed. The plates showed a fracture of the scaphoid of the right wrist. He was put up in a cock-up splint. When he first came in he had trouble with dorsal flexion, but now he has good motion. He has little or no pain in the wrist and no tenderness over the scaphoid. He



FIGURE 1. Pityriasis rubra pilaris.

to the lamp or to natural remission in the disease, I do not know. Locally, anything to soften the scales is of value. Here we are using a salicylic acid ointment.

QUESTION: Does the keratosis plantaris give her much trouble?

DR. BOARDMAN: No, except for the tightness of the skin. Once in a while they get fissures which are painful, but outside of that, they do not complain.

QUESTION: Have you tried thyroid extract on account of the low metabolism?

DR. BOARDMAN: Thyroid has been tried empirically, as in many other diseases. Here we have an indication for thyroid in the low metabolism, but we have been trying one thing at a time and thought we would try that later.

has a pretty good grip. He wants to go back to work, but we believe that he will be better off if he takes a couple of weeks more before he resumes active work.

This boy injured his hand in October, 1925, playing football. He treated his wrist as a sprain until he came here in May, 1926. X-rays showed a fracture of the scaphoid. He had, at that time, but little dorsal flexion. The fracture was seven months old. Instead of putting him into a cock-up splint we gave him baking, massage and motion and a heavy wrist strap which included the palm of the hand. He hasn't quite as much dorsal flexion as in the other wrist. He is back at work as a steam-fitter, and has good flexion and function. Once in a while his wrist gets weak and he has a little pain periodically.

The next case is one that Dr. Cotton operated

upon. This man, last October, was in an accident and at another hospital they put his hand in a cast. Three weeks after the injury he came into this hospital. An x-ray showed a fracture through the scaphoid with dorsal displacement of the proximal portion of the bone, and forward dislocation of the semilunar bone with backward displacement of the os magnum. With forward displacement of the semilunar and the backward displacement of the os magnum, Dr. Cotton thought it better to go ahead and remove the proximal portion of the scaphoid and the semilunar. This was done. From the x-ray the semilunar and the proximal portion of the scaphoid are seen to have been removed, and the os magnum lies in apposition to the lower end of the radius. He has some swelling and does not have quite as much dorsal flexion as normally. He has, however, absolutely no pain, has a good grip and is able to work.

One point I wish to bring out is that most of these cases coming into the hospital have had an injury of from three weeks to seven months duration. They had been treating themselves throughout this period for a sprained wrist.

As regards operation, we feel that most of them can be treated without it by getting them into a cock-up splint early. I have seen many of these cases and have had good luck as far as pain and dorsal flexion are concerned. They all have had a good wrist with flexion nearly as good as on the other side and I do not think operating on them would have given better results. In a case with a lot of displacement, operating with removal of the proximal portion of the scaphoid does away with the pain and provides them with more flexion, although even here the results are not entirely satisfactory. I believe the case should not be operated on until the ordinary treatment has been given a thorough trial.

DR. OTTO HERMANN: How long do you keep them in the cock-up?

DR. BURNETT: About six weeks. We have had this patient for four weeks in a cock-up splint. He has little or no tenderness or pain and has been getting massage.

DR. OTTO HERMANN: How soon do you start massage?

DR. BURNETT: Keep them up and quiet for four weeks and then start massage. I should like to ask Dr. Cotton what he thinks of operative and non-operative treatment?

DR. F. J. COTTON: I think a good deal as Dr. Burnett does. When the semilunar and the fragment of the scaphoid are jammed forward and the distal portion of the scaphoid and the os magnum backward, I think all the cases are operable. I have operated on a good many, and nearly all of them have good wrists. You can not do as well without operation. Most of them are crippled. Where the semilunar is dislocated forward, it had better come out. It has no

blood supply and runs the risk of fibrous osteitic changes. When the scaphoid alone is involved, a great many are debatable.

I think the doctor has had a fortunate experience in the cases that have come to him. There are others that have had trouble with the bone, and the wrist lays them up. Such cases are better if the proximal fragment of the scaphoid is removed and the distal trimmed so that it does not lie in apposition with the styloid process of the radius. If the early cases are put in a cock-up splint, you get bony union, but in those that have gone longer before being seen you get fibrous union. In those that come in fresh and can not be reduced treatment is a debatable question, but I believe it is better to remove the proximal fragment. We are not operating on fractured scaphoids as a routine, and I do not think we should.

DR. BURNETT: As regards union, the second case dates back seventeen months, and still there is no bony union in the scaphoid although he has a perfectly good wrist.

#### CALCIFIED SUBDELTOID BURSITIS TREATED BY PHYSIOTHERAPY

DR. F. B. GRANGER: This is a series of cases of subdeltoid bursitis with calcification. In many of these cases the calcification disappears spontaneously. While there is complete disappearance in practically all under treatment, yet it cannot be claimed that the treatment is responsible for disappearance in every case. There are, however, cases which, according to x-ray evidence, have had calcification for four or five years with repeated exacerbations, and which under treatment show rapid and complete disappearance of calcification. In these cases it seems fair to assume that the physical therapeutic treatment is the determining factor. In any event the institution of early treatment results in much quicker relief of pain and apparently lessens the time of disability. Dr. Resnik will report in more detail on several of these cases.

QUESTION: What is the chemical composition about the bursa?

DR. GRANGER: Those which have been examined by Dr. Mallory have shown practically pure calcium carbonate, sometimes with a mixture of amorphous fats.

QUESTION: Any urates?

DR. GRANGER: No.

QUESTION: Have you tried atophan?

DR. GRANGER: Yes. There is no question but that in certain types of cases atophan in addition to treatment hastens recovery.

DR. JOSEPH RESNIK: The following three cases were taken from a larger series of acute subdeltoid bursitis with calcification. Each one of them gave a history of injury and complained of severe pain and limitation of motion in the shoulder joint, notably on abduction, adduction,

and rotation. X-rays showed shadows of varying densities in the subdeltoid regions.

All of the following physiotherapeutic measures were employed: radiant heat (1000 watt lamp), diathermy, chlorine ionization, massage and manipulation. Each measure requires about 20 minutes, making the total time of treatment about an hour and a half. This combination is more effective than any one of them alone.

These cases responded with relief from pain, gain in motion, and partial or complete disappearance of shadows, as checked up by final x-ray plates.

First case: Mrs. M. S., aged 43; occupation, dancing teacher. Chief complaint, pain and limitation in both shoulder joints. First x-rays, taken January 7, 1925, showed dense shadows in subdeltoid regions of both shoulders. Physio-



FIGURE 1. M. O. S. X-ray taken on admission, September 15, 1926. Dense shadow shows calcification of the subdeltoid bursa.

therapy was instituted. Two months later x-rays taken for comparison showed a clearing up of the shadow in the left shoulder and only a faint shadow in the right shoulder.

Second case: Mr. M. K., aged 40; occupation, merchant (patient is occasionally required to lift heavy trunks). Complaint, pain and limitation of motion in left shoulder joint; duration, two days. X-rays, taken August 13, 1926, showed calcification in left subacromial bursa about the size of an orange seed.

During the following five weeks thirteen treatments were administered. On September 21, 1926, x-rays of both shoulders were taken. One showed that the shadow previously seen below the acromial process of the left shoulder was

considerably diminished in size and density. In the other there was a small shadow on the outer border of the head of the right humerus in the region of the bursa. As neither shoulder caused any aggravating symptoms at this time, the patient was advised to discontinue treatment.

Third case: Mrs. M. O. S., aged 54; occupation, housewife. Complaint, pain and restricted motion in right shoulder joint; duration, 11 days. There was a history of trauma and exposure. X-rays taken September 15, 1926, showed a dense shadow in the right subdeltoid region (Fig. 1). Thirteen treatments were administered, and a second set of x-ray plates was taken. These plates (Fig. 2) showed evidence



FIGURE 2. M. O. S. X-ray taken October 16, 1926, after one month's treatment. Shadow shows partial absorption of calcification.

of partial absorption of the calcification. At this time the patient experienced only slight pain on extreme backward motion. Nine more treatments were given and the final set of x-ray plates was taken, two months from date of the first. These plates (Fig. 3) showed practically complete absorption. The patient was discharged well.

All these patients have resumed their occupations and have made no complaints since.

As a rule the average case of acute subdeltoid bursitis with calcification responds to physiotherapy. These cases are usually treated every other day with gradual relief from pain and restoration of function. At the end of four weeks x-rays are taken for comparison and, not infrequently, they show some absorption of the calcification. When physiotherapy is continued and

subsequent x-rays are taken, about one month later, in some cases complete disappearance of the shadow may be observed.

QUESTION: How do you apply the electrodes?

DR. GRANGER: Ordinarily antero-posterior,



FIGURE 3. M. O. S. X-ray taken November 16, 1926, after two months' treatment. X-ray shows practically complete absorption.

bringing the electrodes more toward the front to get the skin effect, and also by a small electrode above and a larger electrode in the axilla. In the acute cases the latter method can not be used.

**VOLVULUS OF ILEUM.** Case presented and discussed by Dr. G. W. Papen.

**NEPHROPEXIES FOR KINKED URETERS.** Pyelograms of two cases shown and cases discussed by Dr. A. Riley.

**DOUBLE CYSTIC KIDNEYS.** Pyelogram shown and case discussed by Dr. A. Riley.

**END RESULTS ON TWO CASES OF PERIPHERAL FACIAL PARALYSIS TREATED WITH GALVANISM.** Cases presented and discussed by Dr. F. B. Granger.

**TREATMENT OF HERPES ZOSTER WITH THE AIR COOLED ULTRA VIOLET LAMP.** Discussed by Dr. F. B. Granger.

**GENERAL MUSCULAR PAIN.** Case presented and discussed by Dr. J. A. Foley.

#### THE ROCKEFELLER FOUNDATION

##### REVIEW OF WORK IN 1926

THE following brief extract from its review for 1926 shows strikingly the varied philanthropic activities of the Foundation:

"During 1926 the Rockefeller Foundation, in disbursing \$9,741,474, (1) aided the growth of fourteen medical schools in ten different countries; (2) maintained a modern medical school and teaching hospital in Peking; (3) assisted the development of professional public health training in fifteen institutions in twelve countries and in ten field stations in the United States and Europe; (4) contributed to nurse training schools in the United States, Brazil, France, Poland, Yugoslavia, China, Japan, and Siam; (5) sent, as emergency aid, journals, books or laboratory supplies to institutions in twenty European countries; (6) helped twenty-one governments to combat hookworm disease; (7) gave funds to organized rural health services in 244 counties in the United States and to thirty-four districts in twelve other countries; (8) shared in the creation or support of various departments in State or national health services in sixteen countries; (9) coöperated with Brazil in the control of yellow fever, or in precautionary measures against the yellow fever mosquito, in ten States; (10) continued yellow fever surveys and studies in Nigeria and on the Gold Coast; (11) aided efforts to show the possibilities of controlling malaria in nine North American States and in Porto Rico, Nicaragua, Salvador, Argentina, Brazil, Italy, Spain, Poland, Palestine, and the Philippine Islands; (12) helped to improve the teaching of physics, chemistry, and biology in eleven institutions in China and in the government university of Siam; (13) supported the Institute of Biological Research of the Johns Hopkins University and contributed toward the publication of *Biological Abstracts*; (14) gave funds for biological or mental research at Yale University, the State University of Iowa, and the Marine Biological Station at Pacific Grove, California; (15) provided, directly or indirectly, fellowships for 889 men and women from forty-eight different countries, and paid the traveling expenses of sixty-nine officials or professors making study visits either individually or in commissions; (16) helped the Health Committee of the League of Nations to conduct international study tours or interchanges for 120 health officers from forty-eight countries; (17) continued to aid the League's information service on communicable diseases; (18) made surveys of health conditions, medical education, nursing, biology, or anthropology in thirty-one countries; (19) lent staff members as consultants and made minor gifts to many governments and institutions; (20) assisted mental hygiene projects both in the United States and in Canada, demonstrations in dispensary development in New York City, and other undertakings in public health, medical education, and allied fields."

## A SIMPLE METHOD FOR ESTIMATING DIABETIC DIETS

BY GEORGE H. TUTTLE, M.D.

THE weight of the patient in kilograms must be known.

Kilogram weight  $\times$  25 = Total calories B. M. (basal metabolism). Following out the column of the total calories on the left-hand side of the table the amounts of proteinoids, carbohydrates and fats for a patient at rest are indicated. For an ambulant patient 30% must be added to the total calories, and 50% for one at work. Some

$$\text{Fats} \quad \left\{ 2 \times C + \frac{P}{2} \right\} = 8.1 \text{ gm. } " \quad "$$

## Example

To estimate diet totaling 3700 calories:

$$\begin{aligned} 37 \times 5.9 \text{ gm.} &= 218.3 \text{ gm. Total Glucose} \\ " \times 2.7 \text{ gm.} &= 99.9 \text{ gm. Proteinoids} \\ " \times 3.4 \text{ gm.} &= 125.8 \text{ gm. Carbohydrates} \\ " \times 8.1 \text{ gm.} &= 299.7 \text{ gm. Fats} \end{aligned}$$

DIET TABLE I  
Arranged according to Basal Metabolism and Woodyatt's ratio between Carbohydrates and Fats to avoid Acidosis.

LBS.	K-WT	At Rest				TOTAL GLUCOSE	30% CALORIE INCREASE	50% CALORIE INCREASE
		TOTAL CALORIES	PROTEIDS	C. H.	FATS			
44	20	500	13.3	17	40.6	29.5	650	750
66	30	750	20	25.5	61.3	44.25	975	1125
88	40	1000	26.6	34	81.3	59	1300	1500
110	50	1250	33.3	42.4	101.4	73.5	1625	1875
132	60	1500	40	50.8	121.6	88.5	1900	2250
154	70	1750	46.6	59.3	141.9	103.25	2275	2625
176	80	2000	53.3	67.8	162.2	118	2600	3000
198	90	2250	60	76.2	182.4	132.8	2925	3375
220	100	2500	66.6	84.7	202.7	147.5	3250	3750
242	110	2750	73.3	93.1	222.8	162.25	3575	4125
264	120	3000	80	101.6	243.2	177	3900	4500

The above figures computed by Woodyatt's formulae give the nearest approximation possible. Total Glucose varies from 1 to  $3\frac{1}{2}$  gr from exact estimates.

authorities believe that 10% of the total calories should be added to these figures for energy expended in digesting the food. The table gives the proper proportions according to the total calories up to 3000 calories. Higher caloric intake, or intermediate amounts, may be estimated as shown above.

TO ESTIMATE ANY NUMBER OF TOTAL CALORIES  
Per 100 calories

Total Glucose  $(100 \div 17) = 5.9$  gm. per 100 Calories  
Proteids  $(2/3 \text{ of K Wt}) = 2.7$  gm. " " "  
Carbo-  
hy-  
drates  $\left\{ \frac{8 \times TG}{10} - \frac{P}{2} \right\} = 3.4$  gm. " " "

Estimates of above diet by Woodyatt's formulae give  
Antiketogenic 213.6 gm. Ketogenic 315.6 gm.  
Ratio 1 : 1.478

## CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING  
JULY 16, 1927

Diphtheria	22	Bronchopneumonia	15
Last week	13	Cerebrospinal menin-	
		gitis	2
Diphtheria bacilli	5	Chickenpox	45
carriers	8	Mumps	21
Last week	18	Pneumonia, lobar	12
Scarlet fever	40	Poliomyelitis	3
Last week	40	Tetanus	1
Typhoid fever	3	Tuberculosis, pulmo-	
Last week	1	nary	55
Measles	41	Tuberculosis, other	
Last week	30	forms	3
Whooping cough	32	Gonorrhea	12
Last week	25	Syphilis	10

**Case Records  
of the  
Massachusetts General Hospital**

**ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN  
WEEKLY CLINICO-PATHOLOGICAL EXERCISES**

EDITED BY R. C. CABOT, M.D.  
F. M. PAINTER, A.B., ASSISTANT EDITOR

**CASE 13311**

**WEAKNESS, PALLOR AND NUMB  
FINGERS**

**MEDICAL DEPARTMENT**

**First Admission**—An American Jew seventy years old, formerly a railway inspector, entered the hospital January 26 complaining of dyspnea on exertion and a sensation of coldness and drowsiness.

For fourteen years he had been under medical care. His trouble began with an acute bronchitis for which he was treated for ten days at a hospital. After his discharge he had weakness, pallor and numbness of the finger tips. His physician told him he was anemic. The symptoms had persisted. Two years later he became very sensitive to cold and had drowsiness and loss of energy. All the hair disappeared from his body. Ever since that time he had been treated off and on with thyroid extract. The first dose nearly prostrated him. He sometimes thought the treatment had helped, but the symptoms had continued. He thought his memory, reasoning power, observation and disposition had deteriorated. (The history taker however considered him very intelligent and unusually well informed in medicine. The history was given without variation and was thought entirely reliable.) Six years before admission he had to give up his business on account of drowsiness. All his mental processes were slowed. His skin became dry and rough. Five years before admission he was treated for three weeks in Hospital Y for a severe attack of influenza. At the hospital he gave a history of precordial pain and palpitation. On returning to Dispensary X for thyroid treatment a heart condition was detected. Since that time he had had symptoms referable to the heart, the chief being dyspnea on slight exertion, so that he had to walk slowly. He had had some vertigo and staggering. He was treated without relief for myxedema for periods of ten days to two weeks at Hospital Y. He thought the thyroid caused toxic symptoms. He lost appetite, had nausea and vomiting and became very nervous. Since that time he had not taken thyroid. Both sets of symptoms had continued about the same. Once about a month before admission he fainted. He had felt fairly well except when he overexerted.

His father died of Bright's disease, one sister of cancer. He was divorced from his second wife, who had had one miscarriage and three healthy children.

Except for a period of malaria—chills and fever during the summer for about ten years—he had always been strong and well until the present illness. During his youth he had lues and Neisser infection. He had antisyphilitic treatment for seven years and was told he was cured. For four years he had had cataracts in both eyes.

A report from Dispensary X shows that at two visits twelve years before admission he was treated with thyroid extract. At a third visit marked anemia and absence of pubic and axillary hair were noted, and potassium iodide given. Six years later blood examination showed 3,300,000 reds, smear normal. In May a year and a half later the heart rate was 36; no enlargement or murmurs; blood pressure 170/80. In November a year and a half after this the patient was very pale. The blood was normal. Blood pressure 120/70. Four tests showed a basal metabolic rate of —30 to —1. Thyroid extract  $\frac{1}{2}$  grain t.i.d. was ordered. Six months later the basal metabolic rate was —14 to —22 at four tests. The patient thought the thyroid had helped him wonderfully. Three months later the red count was 3,150,000, the color index 1.0. Wassermann positive.

A report from Hospital Y records five hospital admissions.

(1) Hospital Z, twelve years before admission to the Massachusetts General Hospital. Apex impulse of heart not seen or felt. No murmurs. Blood pressure 135/90. Electrocardiogram: rate 90, a very rare single premature contraction, ventricular in origin. Blood normal. Discharged in twelve days much improved, with orders for thyroid extract. Reported three months later in excellent condition; no longer taking thyroid.

(2) In Hospital Y for eighteen days four years later. Influenza.

(3) In Hospital Y for nine days three years later. Complaints, weakness and drowsiness. Marked pallor, sluggish pupils, scar on penis. Heart measurements by percussion 9.5 centimeters to the left, 2 to the right. Blood pressure 110/68. Red 2,928,000, hemoglobin 60 per cent. Wassermann strongly positive.

(4) Hospital Y, a year later. Complaints, precordial pain, dyspnea and palpitation on exertion, gait slow and dragging, dizziness, poor appetite. Heart 2.5 | 11 cm. Rate very slow.

Blood pressure 118/88. Red 3,200,000. Wassermann positive. Cardiograph: complete auriculoventricular block, auricular rate 58 to 61, ventricular 34 to 38, no preponderance. Sluggish knee-jerks.

(5) Hospital Y, November, two years and eight months later and ten years before first admission to the Massachusetts General Hospital. Complaints, lack of energy and dyspnea on exertion. Red count 3,590,000, hemoglobin 65 per cent. Wassermann positive. X-rays: Right top obliterated—old tuberculosis. Heart enlarged in transverse diameter. Prominence of arch to the left. Electrocardiograms: complete auriculoventricular block; intraventricular block. Basal metabolic rate raised from —30 to +20.

Clinical examination showed a very pale, emaciated old man with red lips and mucous membranes. Axillary hair entirely and pubic hair practically gone. Teeth absent. Apex impulse of the heart not located. Left border of dullness 11 centimeters from midsternum, 2.5 centimeters outside the midclavicular line, right border 6 centimeters to the right, supraventricular dullness 7 centimeters. Action regular, rate 36. Sounds of good quality. Aortic second sound accentuated. A soft systolic murmur at the apex, not heard at the base. Blood pressure: right 210/90, left 210/80 to 160/120. Auscultatory gap between 160 and 120 on the left only. An electrocardiogram showed complete auriculoventricular block, auricular rate 60, ventricular 42, flat T<sub>2</sub> wave, rather small complexes in all leads, with slurring. Lungs, abdomen, extremities, pupils and reflexes normal. Tabs of external hemorrhoids. Scar of old chancre on corona. Blepharitis and bilateral cataracts.

Amount of urine normal when recorded, cloudy at one of four examinations, dark once, alkaline once, specific gravity 1.010 to 1.020, no albumin. Blood: leucocytes 7,950 to 7,200, polymorphs 69 to 59 per cent, hemoglobin 80 per cent, reds 4,980,000 to 3,887,500. Slight poikilocytosis and slight achromia in one smear; another smear normal. Two Wassermanns strongly positive. Basal metabolic rate —14, pulse 38, weight 50.5 kilos.

Temperature 99.6° to 98°, pulse 29 to 41, respiration normal.

The patient was given thyroid extract. February 9 he was discharged to the Thyroid Clinic.

*History of interval.* During the next fourteen months he was treated at intervals with thyroid extract and potassium iodide. The basal metabolic rate ranged from +3 with thyroid to —40 without it. After a period of increased drowsiness, loss of memory, sensitiveness to cold, constipation and puffiness of the face in October and November following omission of thyroid, he made some improvement on resuming it in the winter and spring. A cataract of the right eye was removed at the Eye and Ear Infirmary a short time before his second admission to the wards.

*Second admission.* April 14, fourteen months after his discharge, he came to the Metabolism Laboratory for a test. The rate was —13. He said that the morning of the visit he suddenly

had a chill with fever. He occasionally had such attacks, like those of his old malaria. After the metabolism test he had a shaking chill with a temperature of 101°. He was kept in the Metabolism Laboratory for several hours, then sent to the Emergency Ward. Before the arrival of the house officer he died.

#### DISCUSSION

BY RICHARD C. CABOT, M.D.

#### NOTES ON THE HISTORY

What was the diagnosis made twelve years ago?

A PHYSICIAN: Myxedema.

DR. CABOT: He felt cold, the hair fell out, which is a myxedematous symptom, and the drowsiness and loss of energy are characteristic. Probably they gave him too much thyroid at the outset. We should begin with small doses in any case. We do not know what the idiosyncrasies of the patient is.

A dry rough skin is another myxedematous symptom.

"Heart condition" is a favorite piece of medical slang. It is not English. It means they did not quite know what the trouble was, so they used this vague word "condition." It is bad for our minds to do things like this. We ought to say what it is or say nothing.

I should like to speak about this symptom of fainting in relation to cardiac disease. I am sure every doctor has been consulted by patients who thought they had heart trouble because they had fainted. In my experience cardiac patients almost never faint, and people who faint almost never have heart trouble. Of course the last we cannot set down as a fact. But fainting is not a common symptom of heart trouble. We can reassure people by telling them that, after examining them and finding that the heart is all right. The two things that people come to me about, for heart trouble, are cold sweating hands, which means neurasthenia, and fainting. We can do a lot of good, I am sure, by reassuring people about these symptoms.

A PHYSICIAN: Has most heart trouble objective symptoms?

DR. CABOT: A good many early rheumatic cases do not show anything. They do not have dyspnea. But later on most of them do.

I learn nothing from the family history in this case.

A basal metabolic rate of —30 is abnormal, —1 is not, —22 is certainly abnormal, —14 is near the line.

In Hospital Z they made the diagnosis of myxedema and nothing else. In Hospital Y the heart measurements and blood pressure were normal. In the second report from Hospital Y there is a slight enlargement of the heart.

Up to date we should say we know he has had

myxedema, we are pretty sure he had syphilis. His anemia may be due to either myxedema or syphilis, we do not know which.

#### NOTES ON THE PHYSICAL EXAMINATION

The right border of dullness six centimeters to the right is very abnormal, and would mean very great dilatation of the right auricle ordinarily.

If we had been there I think we should not have recorded quite so great changes in blood pressure. Somebody is making a mistake. We have no right to have such differences as that.

We may consider the urine normal, and the blood is all right so far. They got one smear normal and one showing poikilocytosis. That means that one of the examiners was wrong. The blood does not change so fast.

The Wassermann has been strongly positive every time it has been done.

#### DIFFERENTIAL DIAGNOSIS

The question is, why did he die?

A PHYSICIAN: Did they give him salvarsan?

DR. CABOT: I don't believe they did. I think we should have had a record of it if they did.

Dr. Mallory ought to say atrophied thyroid. The patient should have a myxedema. That is all that I am sure of. Why am I not sure of a diagnosis of syphilis? He had Wassermann positive four times. Because I do not know where the disease is, and I have found in discussing cases like this that unless one has evidence of definite lesions of syphilis it is not safe to say that anything will be found post mortem.

A PHYSICIAN: He had a scar on the penis.

DR. CABOT: Yes, but there are other reasons for that. Durey's bacillus is just as likely to give that,—rather more so.

He had a heart block, and when one has a heart block as long as he had we ought to find something in the region of the bundle of His, usually fibrous tissue, chronic myocarditis in the interventricular septum. Other than that I do not see how we can say anything in particular about his heart. If he had one patch of myocarditis he probably had more, and he ought to have one to cause this heart block, so I guess he had some more. We had various accounts about the size of his heart. My guess is that it is somewhat enlarged. Otherwise I do not know what is going to be found.

He had an anemia which could be explained by his myxedema or his syphilis, if he had it. But that was not present at the last examination. His kidneys ought to be sound. His gastro-intestinal tract ought to be normal. We have not enough evidence to make any diagnosis of nervous disease. So that I think I shall say myxedema, myocarditis, a hypertrophied heart, and that is all.

A PHYSICIAN: Why the sudden death?

DR. CABOT: Our necropsy statistics show

that in most cases of sudden death we never find the cause. Necropsy in the majority of cases of sudden death shows nothing. Next to that we can say that in adults cerebral hemorrhage, blocked coronary artery and pulmonary embolism are the commonest causes. We have no evidence of any of those. He has had no precordial pain or epigastric pain such as we get with coronary block, and no nervous symptoms to correspond to cerebral hemorrhage. Of course with a heart block anybody's heart is apt to give out, and I think the best thing to say is that he had a heart block which finally brought his heart to a standstill.

A PHYSICIAN: Why the chills and fever?

DR. CABOT: I do not know. It has nothing to do with myocarditis. Of course he may have got a pneumonia.

A PHYSICIAN: I thought of pulmonary embolism.

DR. CABOT: Pulmonary embolism does not give chills and fever. It does often give intense cyanosis. I do not see why we should suspect it here.

A PHYSICIAN: Prostatitis?

DR. CABOT: That would not kill him. That is a chronic thing. I dare say he has it, but I do not believe it contributed materially to his death.

A PHYSICIAN: Cerebral hemorrhage?

DR. CABOT: The brain was not examined, and I do not like to discuss things unless we are going to know.

#### CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Senility.

Myxedema.

Syphilis.

Malaria.

Myxedema heart with block.

#### DR. RICHARD C. CABOT'S DIAGNOSIS

Myxedema.

Chronic fibrous myocarditis, especially in the region of the bundle.

Hypertrophy and dilatation of the heart.

#### ANATOMIC DIAGNOSES

1. Primary fatal lesion.

Bronchopneumonia.

2. Secondary or terminal lesions.

Coronary sclerosis.

Fibrous myocarditis.

Myxedema.

3. Historical landmarks.

Healed tuberculosis.

Cystitis cystica.

DR. MALLORY: The body presented the ordinary external signs of myxedema already de-

scribed in the clinical record. The thyroid was quite interesting. It was of about the normal extent so far as surface area was concerned, but not more than two to three millimeters in thickness at any point, whereas the lateral lobes are normally one to two centimeters in thickness. The total weight was less than eight grams, compared to a normal of thirty to forty. Microscopic examination showed a very marked fibrosis, and in the relatively small number of acini remaining there were a great many which contained no colloid. Many, however, were perfectly normal in appearance.

The thymus was negative, entirely converted into fat tissue, as is normal at his age. The lungs showed a healed tuberculosis at the right apex, which checks the old X-ray diagnosis on that point. There was also a very slight early bronchopneumonia, which I think accounts for his terminal chill. It was just barely to be made out however, and certainly could not have caused so sudden a death in an otherwise normal person.

The heart was not enlarged. It weighed 230 grams. The myocardium was pale and flabby, the ventricles normal in appearance, although the intima over the interventricular septum on the left side was definitely thickened and sections from the septum did show a definite increase in fibrous tissue in that area. The cause of this fibrous myocarditis rests in calcification, that is, arteriosclerosis of the descending branch of the left coronary artery, which was very markedly contracted. The circumflex branch of the left and the larger branches of the right showed a moderate degree of atheroma, but without functionally diminished lumens. The aorta showed very marked arteriosclerosis but no lesions that definitely suggested syphilis, and the same is true of the myocardial lesions. They conceivably could have been caused by syphilis, but there is no proof either for or against.

The kidneys were rather small, weighing only 215 grams. The cortex averaged 3 millimeters in width, about one-half normal. The surfaces were slightly granular, the capsules very slightly adherent. This is the ordinary arteriosclerotic type of nephritis that gives very little in the way of symptoms until the late stages.

The bladder showed very marked hypertrophy and cystitis cystica, but the prostate was not particularly enlarged, and I think it is possible that there was a stricture lower down in the penile urethra which we were not able to examine.

#### CASE 13312

#### DYSPNEA, CYANOSIS AND COUGH IN AN INFANT OF EIGHT MONTHS

#### CHILDREN'S MEDICAL DEPARTMENT

An eight-months-old girl baby of American parentage entered the hospital March 21.

The mother gave the following history. Since birth the child had had some difficulty in breathing and had occasionally choked and become blue. The breathing difficulty was more noticeable during the day while she was awake, although her breathing was noisy and somewhat oppressed when she was asleep. The condition was steadily growing more troublesome. For the past week she had been coughing and vomiting two or three times a day. Her bowels were regular, her stools normal. She had never had a convulsion.

The family history was negative.

The child was normally delivered at full term and weighed seven pounds at birth. She was breast fed until the fourth week, but failed to gain and cried continually. She was put on a formula of whole milk and barley water for a month and did poorly. She was then given Melin's food and whole milk for three weeks. She still failed to gain and developed a rash. She was then given Baby Brand milk and did fairly well for three months. At the age of six months she was put on a formula of one-third barley water, two-thirds whole milk, one-half dram of cane sugar to seven ounces every three hours. A week before admission the amount was reduced to five ounces at a feeding every three hours. She had not had cod liver oil, orange juice, cereal or vegetables. She had had no contagious or infectious diseases. She had been out-of-doors three or four hours every morning since birth.

A letter dated March 15, signed by a physician, states that the child commenced to breathe badly between the third and fourth months. The condition had grown worse. The mother was unable to nurse the child. At the present time the child was taking cows' milk and barley water, orange juice and cod liver oil, syrup of hydriodic acid and occasionally a drop of adrenalin chloride to relieve the spasm. He enclosed an X-ray of the lung taken about the middle of February.

Clinical examination showed a fairly well developed, poorly nourished infant. The head, ears and mouth were normal. The throat was slightly congested. There were enlarged glands in the neck and groins. There was a small papular necrotic nodule on the face and three on the right leg. There was no extra adenoid tissue. There was no impairment of the percussion note over the lung fields proper. There was some dullness over the spine to the fifth dorsal vertebra. Inspiration and expiration were somewhat prolonged. The breath sounds were somewhat rough. There were râles over the whole right chest. The heart was normal. There was a small umbilical hernia. The tip of the spleen was just felt. The neuromuscular condition was fair. There was no Kernig or Brudzinski.

Urine cloudy, specific gravity not recorded, all laboratory examinations negative. Blood at entrance: 28,300 leucocytes, 59 per cent lympho-

cytes, 40 per cent. polymorphonuclears, 1 per cent. eosinphils, hemoglobin 80 per cent., reds 5,250,000. At three later examinations leucocytes 22,500 to 17,300, lymphocytes 60 to 51 per cent., polymorphonuclears 40 to 49 per cent., hemoglobin 70 to 65 per cent., reds 3,550,000 to 4,950,000. At the two last examinations reds and platelets normal. Throat culture negative. Intracutaneous tuberculin test March 22 1/10 milligram and March 25 1 milligram, both negative.

X-ray March 22 showed the left lung essentially clear, the right lung field definitely pathological. There was an area of dullness involving

respirations 27. For the next six days temperature 101° to 104.8°, March 28 to April 11 98.4° to 103.4°, April 14 to May 16 98° to 100°. Pulse 124 to 180 until March 29, then 120 to 153 until April 15, then 100 to 130 until May 14, then 132 to 148. Respirations 35 to 60 until April 13, afterwards 26 to 42.

The child had very brassy cough and some attacks of cyanosis. Râles were especially marked in the right back and at the right base in the anterior axillary line. The breath sounds were somewhat suppressed over the whole of the right chest. The child did fairly well, although she did not take her feedings well. She was given

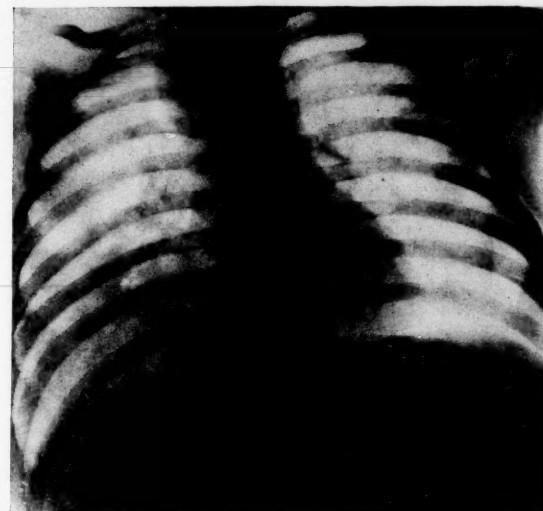


PLATE I. Taken May 6. Shows rather coarse mottled dullness at the right hilus. The upper mediastinal shadow is increased. The process appears if anything more dense than at the last

dullness at the right base, the middle portion of the lung and in width, the appearance probably due to enlarged glands.

the hilus and extending upward toward the apex, also downward in the region of the right descending bronchus. The heart appeared to be a little displaced to the left. April 14 the previous plates were not present for comparison. There was mottled dullness involving the mid and lower portions of the right chest. April 20 the process appeared slightly less extensive than at the last note. There was considerable mottling at the right base. May 6 there was still rather coarse mottled dullness at the right base, the middle portion of the lung and at the right hilus. The upper mediastinal shadow was increased in width, the appearance probably due to enlarged glands. The process appeared if anything more dense than at the last observation.

At admission temperature 100.2°, pulse 102,

an occasional subpectorral. The cough improved somewhat. April 2 both ears were opened and pus was obtained. By April 10 the râles had disappeared, and by April 23 the chest seemed to be nearly clear. The child continued to gain somewhat.

#### DISCUSSION

BY JOSEPH GARLAND, M.D.

From the 21st of March until the 13th of April there was irregular temperature with one short remission about the 29th of March; then it went up and for two or three days was 104°. She was given a subpectorral infusion of salt solution during the febrile stage. The otitis media was probably responsible for the second temperature crest.

This is an interesting case to us for various reasons. The history of brassy cough with which she came in, with a story otherwise fairly negative except for the ordinary type of feeding difficulties which many infants exhibit, suggested certain possible conditions in an infant. The brassy cough strongly suggested intrathoracic pressure; pressure on the bronchi and trachea. It is the type of cough found with enlarged thymus as demonstrated by X-ray. I am not going into any dissertation on the thymus except to say that it has had a good deal of discussion with very few facts found out concerning it. No clear evidence has ever been shown that thymus enlargement has ever caused an operative death. There is no evidence that a simple, persistently enlarged thymus has ever done anything more than possibly to cause occasional symptoms of pressure. *Status lymphaticus* is a textbook word. Clinical *status lymphaticus* I have never seen, and I do not know if anybody has ever seen it so that he could give proof that it is an entity. But in any case I think that a persistently large thymus can give pressure symptoms; can give this type of cough, and occasionally attacks of cyanosis.

Another possible cause for this cough would be a congenital laryngeal defect or spasm. The type due to spasm generally clears up as the child grows older.

A third cause of such a cough might be glands pressing on the trachea and bronchi. We felt that the history was not reliable because the mother was not clear as to when the cough commenced, and after the child had been in the hospital some time the mother decided that the cough had been present only a few weeks. Very soon, however, within a day or two after admission to the hospital, it was obvious that an acute pulmonary infection was starting. The patient showed typical signs and for a few days ran a typical course of bronchopneumonia.

Her weight was fourteen pounds eight ounces on admission. Then there was an immediate drop to thirteen pounds twelve ounces by the next day. I think probably she was given a subpectoral on admission, which would account for the extra ten ounces which she seemed to lose the next day. The weight was up and down, on the third day to fourteen pounds two ounces, then a drop and an actual gain to fourteen pounds eight ounces, then a drop to the period when she had the otitis media, then a fairly uniform weight, between thirteen pounds five ounces and fourteen pounds during the rest of the febrile period. Then her weight began to improve so that on the 6th day of May it was up to fourteen pounds and a half and has been improving since. On a perfectly ordinary diet of whole milk with added cereals, prunes, and green vegetables she has been gaining in weight and color and in general appearance of health since her temperature has been normal.

There were two or three things we were interested in and puzzled by. Here is a perfectly normal looking baby who came into the hospital with this papule on her right cheek. We spent some weeks wondering why it did not disappear. We thought of tuberculin, but she had a negative tuberculin test. Finally we got a fresh lot of tuberculin and repeated the tuberculin test on the 27th of April, and it was strongly positive. We generally start the test with one-tenth of a gram, making a 1/1000 dilution, and if that is negative we go up to 1/100. Having had two negatives we used the stronger solution and got a strongly positive reaction with both a human and a bovine strain. Dr. J. H. Swartz then saw her and definitely pronounced this lesion a tubercle. She has two others on her legs.

I do not know where she acquired tuberculosis. The family history was entirely negative. She had lived in Maine and had presumably been fed on raw milk. We are certain it was not boiled. It is probably not a bovine infection, because bovine infections in infants generally have their primary focus in the intestine or tonsils and adenoids, and in case we have it in the tonsils and adenoids we have cervical adenitis. This infant has pulmonary tuberculosis and skin tuberculosis. She is gaining weight; she is looking well; she is doing well. The question is what her prognosis will be.

I do not think she will be with us in a year, because it is very rarely that we see a pulmonary infection starting under a year of age, with lesions that can be demonstrated, which does not go on to a very rapid fatal termination. We are keeping her because we are interested in finding out how long she will continue to gain. While she is in the ward she is having intensive treatment with direct sunlight when that is possible, and also intensive treatment with the ultraviolet lamp. She is the picture of a much healthier infant now than she was two months ago, but I do not think she is going to keep it up.

DR. CABOT: Is this the sort of pulmonary lesion you are apt to see in infants of this age if they have it at all?

DR. GARLAND: No; I think it is very unusual at this age. I think the most common type of tuberculosis that we see under a year is the miliary. The hilum tuberculosis is of course the most common type of intrathoracic tuberculosis in infants and young children, and commonly when that goes on to actual invasion of lung tissue it spreads from the hilum along the bronchi and gradually infiltrates the lung in a fan-shape fashion.

Here we have a confusing picture. The original plate is lost. The first April plate we consider simply as an evidence of her bronchopneumonia. I do not think that was a tuberculous bronchopneumonia. I think she had primarily a tuberculous infection, then she had a secondary bronchopneumonia with some of the ordinary

ary organisms superimposed, and as that infection cleared up there is this persistent mottling at the base.

DR. J. H. SWARTZ: The skin lesions on the thigh and leg are tuberculids. These are usually due to the toxin rather than to the direct action of the bacilli. The lesion on the face resemble lupus vulgaris. I believe that if it were examined microscopically it would show the presence of a definite tubercle. This patient may have, therefore, two types of lesions:—(1) tubercu-

to tuberculous glands pressing on the trachea and bronchi?

DR. GARLAND: I think probably it is. There is a widening of the mediastinum up here. I think tuberculous hilum glands were undoubtedly the primary focus there. I think the cough is due to glands.

DR. CABOT: Can you tell from X-ray the difference between glands and thymus?

DR. RICHARD DRESSER: No, we cannot. All that we report is a widening of the mediastinal

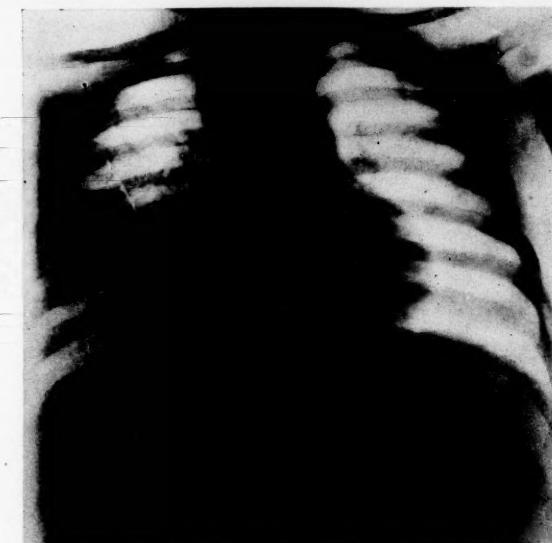


PLATE II. Taken July 9. The process has not changed greatly since the last observation. There is some evidence of enlargement of the hilus glands. At the periphery of the right chest at the level of the fourth rib anteriorly there is a triangular shadow probably representing encapsulated fluid in the vicinity of the interlobar septum.

lids, due to the toxin; (2) lupus vulgaris, due to the direct action of the bacilli.

DR. GARLAND: She has had a process in the lung for two months; she has a positive tuberculin test; she has skin tuberculosis.

DR. CABOT: Has she a cough?

DR. GARLAND: A brassy cough is what she first came for.

DR. CABOT: But not now?

DR. GARLAND: She coughs occasionally. The mother said she had had the cough since birth. I question it. We thought of everything except aneurysm at first to account for the cough, until we had the X-ray.

DR. E. H. LUTHER: There was not nearly so much on clinical examination as the X-ray would indicate.

DR. CABOT: Do you suppose the cough is due

shadow. We do not know whether it is thymus or not. The only way to tell is to treat it with X-ray. If it is a thymus it will disappear; if it is not it will not disappear.

DR. GARLAND: Do you think the thymus means anything?

DR. DRESSER: I don't think we know much about it. Dr. McMillan has made some 4000 examinations in the Eye and Ear Infirmary. All suspicious cases are treated with X-ray. Since they have instituted this routine they have not had an anesthesia death. Before they had several deaths.

DR. GARLAND: Do you think the anesthetic has been better given since then?

DR. DRESSER: That may be it.

DR. GARLAND: They never X-ray the thymus

in the Children's Hospital, and they have very few sudden deaths following anesthesia.

#### INTERPRETATION OF X-RAY MARCH 22

The findings suggest a pneumonic process in the right lung.

#### TUBERCULIN TESTS APRIL 27

Intracutaneous tuberculin tests (human and bovine), 1 milligram, markedly positive.

#### DERMATOLOGICAL CONSULTATION MAY 5

The lesions on the face and leg are of tuberculous nature.

#### INTERPRETATION OF X-RAY MAY 6

The appearance is that of consolidation and enlarged glands.

#### LATER NOTES

Until the middle of May the child improved, coughed less and gained weight. Then she began to run a slight temperature and lost weight until the middle of June. With special diet and nursing care she gained again. June 20 there was some dullness in the right axilla and left inter-scapular space with bronchial breathing in the latter area; no definite râles. The general condition was quite good. The child seemed to be growing normally, though the subcutaneous tissues were not quite normally developed. There was a string of small hard lymph glands on both sides of the neck. The abdomen was somewhat distended, although there was no sign of fluid. The tuberculin on the cheek was nearly healed. Those on the leg were entirely healed. June 8 to 10 she had another elevation of temperature, pulse and respirations, and June 27 to July 8 temperature with 15,000 leucocytes. The percentage of polynuclears was 61, the best proportion so far. She looked very well, and ate large quantities. Her weight fluctuated, but in general increased. June 30 the breathing over the right back had a distant bronchial quality. There were rare crepitant râles. She had some cough. July 9 there was also nasal discharge. X-ray (Plate II) showed no great change in the process at the right base since the last observation. There was some evidence of enlargement of the hilus glands. At the periphery of the right chest at the level of the fourth rib anteriorly there was a triangular shadow probably representing encapsulated fluid in the vicinity of the interlobar septum.

July 9 the patient was discharged to a hospital for tuberculosis.

#### DIAGNOSIS

Pulmonary tuberculosis.

#### FEDERAL TRADE COMMISSION ISSUES ORDER AGAINST PUBLISHER

THE Federal Trade Commission has directed McGowan Laboratories, Inc., Chicago, makers of

"McGowan's Reducine," and Womanhood Publishing Corp., New York City, publishers of "*True Romances*," to discontinue the use and publication of false and misleading statements in the McGowan advertising carried by "*True Romances*."

The McGowan Laboratories, Inc., asserted in its advertising that anyone may be freed from every ounce of unwelcome flesh, and that getting thin is made pleasantly simple and easy for anyone by simply applying "Reducine," a cream that dissolves all excess fat by a harmless chemical reaction. The Commission found these statements to be false and the cream useless for the purpose claimed.

The Commission also found that the Womanhood Publishing Corp., by publishing the fraudulent advertising of the McGowan Laboratories, Inc., in its magazine "*True Romances*," knowingly became a party to the scheme for defrauding the purchasing public.

This is the first case that has come to the attention of the Better Business Bureau in which the Federal Trade Commission has issued an order and finding against a publication for carrying alleged fraudulent advertising of another concern.—*Bulletin Boston Better Business Bureau*.

#### JOINT BOARD OF SANITARY CONTROL OF NEW ENGLAND

815 Little Building, Boston — Florence H. Luscomb, Director

A stimulating picture of improved sanitary and safety conditions in women's garment factories is presented in the recent report of the first year of existence of the Joint Board of Sanitary Control of New England. This organization, and the older New York Board upon which it is modelled, are pioneering industrial adventures in peaceful cooperation between labor and capital for the purpose of freeing their industry from the stigma of the sweatshop and of promoting decent and humane working conditions. They have invited prominent representatives of the public into partnership in their councils.—Professor William Z. Ripley, who serves as chairman; Mrs. Lois B. Rantoul of the Women's Trade Union League, the secretary; Mr. Daniel Bloomfield of the Retail Trade Board; Mr. Edward Frost, vice-president of Filene's store, and Dr. D. C. Parmenter, director of the Industrial Clinic of the Massachusetts General Hospital.

When the Board started its work in May, 1926, deplorable conditions existed. A considerable portion of the factories were found with filthy toilets, locked fire exits, unshaded glaring lights, common drinking cups and towels, and lacking emergency medical supplies. Although the correction of such defects through persuasion and education is necessarily a slow process and by no means completed, the close of the year sees sanitary conditions emphatically better, medical supplies provided, fire hazards lessened, lighting improved, and one-fourth of the entire number of factories moved from old, unhygienic quarters to cleaner, more modern buildings.

During the coming year the Board plans to undertake health education and clinical services under the direction of Dr. Parmenter. The education of the consuming public to demand garments bearing the Prosanis Label, signifying that they were made in approved shops, will continue to be pushed.

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## THE WOMEN'S AUXILIARY OF THE AMERICAN MEDICAL ASSOCIATION

In most of the states of the union there has been established an organization called The Women's Auxiliary of the American Medical Association. This Society has been organized by the wives of physicians in order to assist the physicians in their work, not simply as individuals, but in an organized way. The Women's Auxiliary is divided into state organizations, one for each state and each organization works in co-operation with the physicians of the State Society.

The plan of organization has been for the State Medical Association to request some woman to organize the Auxiliary and in turn each County Society has designated the woman to be responsible for the formation of that group. The work undertaken has been in the line approved by the State Organization.

The object of the Auxiliary, as stated in a general way in its constitution, is to interpret the aims of the medical profession to outside groups, such as women's organizations, to assist in entertaining, and to do other special work referred by the Medical Association. Obviously many of the women eligible to membership in

various parts of the country are in no way informed on Public Health work, so in the very beginning the effort has been made for them to inform and educate themselves. However, women most interested in the Auxiliary have also been in the strategic position of Chairman of Public Welfare in the Federated Clubs and active in Parent-Teachers Association groups, and have made it their job to see that the health programs of those organizations were such as were endorsed by scientific medicine and the State Board of Health; they have also gotten correct educational material in their bulletins.

In some of the states they have been co-sponsors in the luncheon meetings that resulted in the organization of County Societies for the care of Crippled Children and similar conferences on programs for parental education. They have also taken the initiative in securing the observance of May Day-Health Day in certain communities. One County Society in Missouri has pledged one thousand dollars to its local hospital. In two counties this year the Auxiliary has been responsible in securing the establishment of County Health Units and they have also made contributions of above five hundred dollars toward the deficit of the teaching of health and recreation programs in the rural schools over the state, for which the legislature failed to provide.

The Auxiliary has aided in extending the circulation of *Hygeia*. This does not mean that the women have turned themselves into book agents, but various Auxiliaries have subscribed from their treasury for the magazine to be sent to the teachers in rural school districts and in some instances in city schools, and have got the clubs to subscribe and place it on the tables in the reading rooms. In one or two places they have created the demand by persistent inquiry of local dealers for the magazine until the dealer himself stocked it. They have aided in placing educational health films that are put out from headquarters of the American Medical Association.

The fact must not be forgotten that conditions vary in various parts of the country, that there are many County Medical Societies that have died a natural death, and in several instances through the interest of the women these organizations have been stimulated to normal activity.

Up to the present time the work in the various parts of the country has been entirely voluntary upon the part of women who have believed in the Auxiliary idea, but the time has come in certain states when a secretary is necessary who shall also publish a quarterly bulletin to go to each member, in order to expedite the work, and plans for this step are now well under way.

The social side plays a part in greater or less degree. Dinners have been held at some of the county meetings, which were attended by the

men and their wives. This affords an opportunity to members of the profession, who are often strangers, to come together; the happy results to the profession can be easily seen.

The Board of the National Auxiliary at the last meeting requested the American Medical Association to appoint an advisory committee for them. This request was approved by the Council and Dr. Hubert Work has accepted the chairmanship. In the address before the National Auxiliary Dr. Hugh Cummings requested the women in the states not in the joint registration area to use their influence along this line.

Not the least contribution of the Auxiliary to the State Medical Society is in the new emphasis it brings to the value of acquaintanceship and friendship. The idea is better caught than taught and would be recognized by even the most skeptical should he drop into one of the meetings of two hundred or more women, or men and women, taking place in various parts of the country at stated times. It is but a small expression of the great idea that is now seeking universal recognition. It is greatly hoped that New England women, who have much to bring to this, will take their place in this association of women from various parts of the country.

The Women's Auxiliary has already been organized in New Hampshire under the presidency of Mrs. David W. Parker, wife of the ex-president of the State Society, and steps have been taken in Maine under the auspices of the State Medical Association. A temporary organization was created with Mrs. Frank Y. Gilbert as president. In Massachusetts, so far, nothing has been done. It is to be hoped that this important work may be taken up in our state under the presidency of a wife of one of our prominent physicians. If this is done, the organization in Massachusetts will have the benefit of the experience of the organizations in the other states in which it has been well tried out and in more ways than can be easily explained in an editorial of this sort has proven of great value. The president of the National Association is Mrs. John R. McReynolds of Dallas, Texas.

#### LEGISLATIVE PROBLEMS

As one reads the Journals published by the State Medical Societies it will be found that similar troubles with respect to licensing of the cults exist quite generally among the several States. The *Illinois State Journal*, for example, reports that "some forty-five pernicious bills specifically designed to lower educational requirements of those who desire a license to treat the sick" were introduced in this year's session of the legislature and the following-named drugless groups were thus represented: osteopaths, chiropractors, naprapaths, naturopaths, physiotherapists, masseurs, and sanatologists.

The medical profession of Illinois with the co-operation of the County Medical Societies was

successful in defeating all of these bills. Representatives of the Legislative Committee of the State Society attended some fifty-six committee hearings. Here in Massachusetts we have had two definite issues; these made by the chiropractors and by the representatives of the Class C schools, the former seeking special legislation and the latter opposed to raising the standards of medical education.

At our annual banquet, Mr. Henry Lee Shattuck gave us excellent advice in the statement which was published in the *JOURNAL* of July 28 ult., and which reads as follows:

"I rather think that much of the opposition might be removed by a program stressing stricter and more comprehensive examinations for registration, including more in the way of oral examination and practical demonstration, and more adequate requirements concerning courses of medical school study, including perhaps a minimum curriculum, and concerning minimum medical school facilities and hospital training. In the carrying out of any such program the support of the general public should be enlisted. This can be done if the program is carefully prepared and explained. The widespread public interest in all matters of health has been shown time and again by the response both in unpaid service and in contributions to appeals for hospitals and other agencies for promoting public health. Show the public that the measure you advocate is in the interest of public health, and the victory is won."

These suggestions from the Chairman of the Committee on Ways and Means of the House may be regarded as representing the attitude of those members who are interested in promoting that type of legislation which seems to them best calculated to meet the needs of the people under existing conditions. Even to these intelligent and loyal legislators the suggestions may not mean that they believe that ideal conditions can be brought about immediately but that the temper of the legislature would be to progress as far and as fast as the people are ready to endorse sound recommendations.

Ideal laws are built up gradually through education of the people if they are to be made effective. Very important benefits cannot be secured through legislation oftentimes because of the failure of the majority of the people to accept and support a given act. The wise leaders among our lawmakers understand this and believe that real progress can come only through thorough understanding of the reasons for given proposals and belief in the people's support.

Time and concentrated effort must be expended in the program of education wherever prejudices and ignorance exist as bunkers and hazards.

Massachusetts has for various reasons been inclined to move forward rapidly in association with other States in dealing with the standards of medical education, but she has maintained a single standard for those who are to treat the sick and thereby has eliminated some of the dangers incident to a variety of laws which would open the door to those who would not comply with our admittedly low minimum requirements.

We are now invited in a most courteous way

to enter upon a study of certain phases of medical education and practice with members of the legislature and if the suggestion is accepted and conferences arranged, we may confidently expect guidance and support.

It would be discourteous to our able and hard-working Committee on Legislation to make suggestions other than implied in the above, but we hope that the evidence of increasing interest and coöperation of the members of the profession throughout the State will enable our Committee to accomplish much good in the year to come.

#### CAVEAT EMPTOR

BOSTON BETTER BUSINESSS BUREAU has issued a warning, based on the promotions of thirty-three stocks listed on the Boston Curb Exchange, under the caption "Millions Lost in Stock Promotions."

The claim is made that no dividends have been paid on these thirty-three stocks in the 1925-27 period except a 2 per cent. on one which was provided by the sale of one carload of ore and a small per cent. on another just before it went into the hands of receivers.

The losses on these stocks at present quotations as compared with the high prices amounts to more than one hundred thousand dollars. These facts are referred to as warnings to doctors who are, as a class, recognized as easy marks by sharks.

It is strange that men trained to study the cause and behavior of disease should be so inclined to accept and respond to the advice of unknown promoters. Even reputable brokers and bankers are in error at times, but the mistakes of members of stock exchanges and banks are usually based on honest opinions.

Unless one is willing to study investments and appraise the character of dealers in securities, it is much better to invest only in those securities which are legal for savings banks.

A doctor living in Texas recently told us that doctors in that State had very generally given up investing in oil wells because so much money has been lost in ventures of that sort. The same applies to most stock promotions, for a very large proportion of new ventures even in ordinary business are failures. Mining stocks are still more uncertain.

*Let the Buyer Beware* would be a good slogan for every young doctor.

#### INVITATION TO THE ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

THE annual meeting of this body will be held in Montreal October 24, 25, and 26. The headquarters will be in the Mount Royal Hotel.

In the July *Bulletin* a cordial invitation is extended to every one interested or engaged in medical teaching to be present, but only the

deans, as the representative of the faculty of the school, have voting privileges.

In 1926 the attendance reached the high point of 90 per cent of the membership.

The *Bulletin* presents much of interest to those doctors who are not engaged in teaching and the adroit and forceful statements by Dr. Zinsser in his defense of present day medical colleges, as appears in one of the papers published, will amply repay the time devoted to this paper.

#### THIS WEEK'S ISSUE

CONTAINS Articles by the Following Authors:

SPALDING, F. M., A.B., M.D. Harvard 1897. Consulting Surgeon Massachusetts Eye and Ear Infirmary. Ophthalmologist N. E. Deaconess Hospital and N. E. Baptist Hospital. Address: 128 Newbury Street, Boston. Associated with him is

CURTIS, W. STANLEY, M.D. Harvard 1925. Physician to the Diabetic Clinic, Out-Patient Department, Massachusetts General Hospital; Associated with Dr. E. P. Joslin. Address: 81 Bay State Road, Boston. They write on "Retinitis and Other Changes in the Eyes of Diabetics." Page 165.

DRURY, DANA W., M.D. Harvard 1904, F.A.C.S. Associate Aural Surgeon, Massachusetts Eye and Ear Infirmary. Aurist, Boston Floating Hospital. His subject is "Endocrine Hypofunction—in Ear Disease." Page 176. Address: 416 Marlboro Street, Boston.

MORRISON, WILLIAM R., A.B., M.D. Harvard 1913, F.A.C.S. Assistant Professor of Surgery Boston University School of Medicine. Junior Visiting Surgeon at the Boston City Hospital. His subject is "End Result of Posterior Gastro-Enterostomy for a Large Duodenal Ulcer for Twelve Years, etc." Page 182. Address: 520 Commonwealth Avenue, Boston.

OHLER, W. RICHARD, S.B., M.D. Harvard 1914. Assistant Visiting Physician at the Boston City Hospital, Instructor in Medicine Harvard Medical School. His subject is "Impending Diabetic Coma Simulating Acute Appendicitis." Page 183. Address: 270 Commonwealth Avenue, Boston.

FREMONT-SMITH, MAURICE, B.A., M.D. Harvard 1918. Junior Visiting Physician to Boston City Hospital. Instructor in Medicine Harvard Medical School. His subject is "Subacute Bacterial Endocarditis." Page 184. Address: 6 Commonwealth Avenue, Boston.

CRUICKSHANK, FRANK S., M.D. Tufts College Medical School 1920. Junior Visiting Physician to the Boston City Hospital, Instructor in Clinical Medicine Tufts College Medical School. His subject is "Teratoma in a Girl 19 years of Age." Page 184. Address: 23 Bay State Road, Boston.

RICHARDS, THOMAS K., A.B., M.D. Harvard 1919, F.A.C.S. Junior Visiting Surgeon at the Boston City Hospital, Medical Advisor to Harvard Athletic Teams. He writes on "Results on Suturing of Tendons with Catgut." Page 186. Address: 520 Commonwealth Avenue, Boston.

BOARDMAN, W. P., A.B., M.D. Harvard 1905. Visiting Physician for Diseases of the Skin Boston City Hospital. Assistant Professor Diseases of the Skin Tufts Medical School. The title of his paper is "Pityriasis Rubra Pilaris." Page 186. Address: 388 Marlboro Street, Boston.

BURNETT, JOSEPH H., A.B., M.D. Harvard 1919. Surgical Staff Boston City Hospital. Formerly Assistant in Anatomy Harvard Medical School; Assistant in Surgery at Boston University Medical School. His subject is "Results on Fractures of the Carpal Scaphoid." Page 187. Address: 520 Commonwealth Avenue, Boston.

GRANGER, F. B., A.B., M.D. Harvard 1902. Instructor of Physical Therapeutics, Harvard Graduate School of Medicine; Physician-in-Chief, Department Physical Therapeutics, Boston City Hospital; Consultant, Boston Floating Hospital, Chelsea Memorial Hospital, Sturdy Memorial Hospital, Attleboro; Medical Counselor, U. S. Veterans Bureau; Member of Council on Physical Therapy, American Medical Association. Address: 520 Commonwealth Avenue, Boston. Associated with him is

RESNIK, JOSEPH, B.S., M.D. Tufts Medical School 1918. Assistant Visiting Physician for Physical Therapeutics, Boston City Hospital. Address: 536 Commonwealth Avenue, Boston. They write on "Calcified Subdeltoid Bursitis Treated by Physiotherapy." Page 188.

TUTTLE, GEORGE H., A.B., M.D. Harvard 1891. Assistant Surgeon U. S. A. Spanish War. His subject is "A Simple Method for Estimating Diabetic Diets." Page 191. Address: South Acton, Mass.

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## MISCELLANY

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### VOLUME 14 NO. 2 OF THE COMMON- HEALTH

In this number for April, May and June, 1927, the Massachusetts State Department of Public Health presents a series of papers which cover nearly all phases of public health problems dealing with cancer.

Dr. George H. Bigelow's subject is "The Cancer Problem in Massachusetts." This is followed by Dr. Herbert L. Lombard on "Cancer Studies by the State"; Dr. Franklin G. Balch on "The National Aspects of Cancer"; Edith R. Avery on "How Private Organizations Are Helping";

Ida M. Cannon on "Social Service and the Cancer Campaign"; Elizabeth Ross on "The Part a Nurse Can Play in Cancer Control"; Dr. Mary R. Lakeman on "Cancer Education in Massachusetts"; Dr. R. B. Greenough on "Service at the Pondville Hospital" and Dr. Kendall Emerson on "The Cancer Clinic."

All phases of the subject of management of the cancer situation are covered except those purely scientific and technical matters relating to the theories of the causes and surgical technic of treating individual cases.

Massachusetts is in an advanced state with respect to cancer and physicians especially should be thoroughly familiar with the work now in hand. A careful perusal of this volume is a definite duty.

The rest of the volume is also a notable contribution to literature dealing with many live public health responsibilities.

The report of the Division of Food and Drugs is a demonstration of the effort to protect the people of the State from adulterated or otherwise unfit food and drugs.

## THE STATE AIDED CANCER CLINICS

STATEMENT BY DR. GEORGE H. BIGELOW, COMMISSIONER OF PUBLIC HEALTH, JULY 22, 1927

A RECENT report shows that 481 persons have visited the State-aided cancer clinics and that 109 of these had cancer. Of the latter, 80 per cent. could be cured or benefited by treatment. These figures are obtained from the clinics in Springfield, Worcester, Newton, Lowell and Lynn, which have been in operation for periods varying from one to five months.

Considering the many problems incident to organization and the short periods that the clinics have been in operation, these are amazingly good figures and mean admirable work by the local physicians and lay people. In order that cancer may be recognized early enough to be cured, persons must be examined while the symptoms are often very slight. This means that a large proportion of those presenting themselves will be found not to be cancerous. The optimum figure for the group showing cancer in an effectively organized clinic has been given as 16 per cent. Our group showed 23 per cent. Further evidence that the gospel of early examination is bearing fruit is shown by the fact that 80 per cent. of the cancerous were susceptible to effective treatment. Surely as these clinics open in other cities and their attendance grows we should see results in cancer control.

Of the 109 cancer cases, three-quarters were about equally divided between the skin, breast and oral cavity. In only 6 per cent. was the uterus involved. From experience in other clinics we know that this is much less than we have a right to expect, and it means that this group is not presenting itself as it should.

The aid given by the newspapers in the work is evidenced by the fact that two-thirds of the persons come because they read of the clinics in the daily papers. Surely the power of the press in these matters is enormous. Persons interested in utilizing these clinics should consult their local newspapers, hospitals, visiting nursing associations, or boards of health as to location and hours, or should visit their physician for advice.

### RECENT DEATHS

**McCLean**—DR. GEORGE CHESLEY McCLEAN, a retired member of the Massachusetts Medical Society, died following a heart attack at his home in Springfield, June 29, 1927, aged 76.

His career is exceptional in that he succeeded his father, Dr. Alexander Speer McClean, also a Fellow of the Massachusetts Medical Society, in practicing medicine in Springfield for 45 years. Dr. McClean was born in Bliss Street, January 16, 1851. He was the son of Dr. McClean and Rebekah Richardson Brown McClean. After an education in the Springfield public schools he entered Yale University Sheffield Scientific School, from which he was graduated in 1871. He then entered Harvard Medical School, graduating in 1875.

His outstanding service has been his daily visits to Wesson Maternity Hospital, where he actively participated in its management since its founding by D. B. Wesson in 1908. Mr. Wesson appointed him with others to attend to the management of the institution. Dr. McClean had missed scarcely a day in visiting the hospital.

He was also closely associated with the institution of Springfield Hospital, an outgrowth of the old City Hospital in State Street, and was the only surviving member of the original medical staff. He always remained on the staff as a consulting physician.

On January 12, 1876, he married Vrylena Frothingham, daughter of the Hon. Richard Frothingham of Charlestown. They had three children.

**Webber**—DR. HORACE GREEN WEBER died in his garden of heart disease at his home in Wilbraham Center, July 20, 1927, at the age of 72.

He had practiced in Wilbraham since 1884, a graduate of New York University Medical College in 1880. From 1895 to 1913 he was a Fellow of the Massachusetts Medical Society.

Dr. Webber was born November 26, 1854, in Wales. He is survived by a son, Rae Webber of Short Hills, N. J., and two sisters, Mrs. Hattie F. Webber of Palmer and Mrs. Sena Butterworth of Beverly.

### CORRESPONDENCE

#### WAS NAPOLEON'S ILLNESS A FACTOR IN THE LOSS OF WATERLOO?

306 East Forty-third Street,  
Chicago, Illinois,  
July 23, 1927.

*Editor, Boston Medical and Surgical Journal:*

I noticed in a medical journal not long ago an article copied from your issue of November 12, 1925, under the heading: Was Napoleon's Illness a Factor in the Loss of Waterloo? I also saw in another medical journal not long ago the reason given Why Napoleon Lost the Battle of Waterloo—which was attributed to grave somnolency from atrophy of the testes, the diagnosis being adiposo-genital dystrophy due to some pituitary lesion.

What was said in your journal is that some change

came over Napoleon causing him to lose the battle, which theory is generally accepted by students of the subject.

Carabine says hemorrhoids was the trouble on the fatal day of Waterloo, a crisis taking place.

The trouble seems to be that most writers on this subject concentrate all of their ideas on Napoleon, seeming to think he should have won the battle, and because he did not there was something radically wrong with him—when there was not, but if so, a slight ailment only, but it had nothing to do with his defeat at Waterloo.

It is absurd for anyone to say there was something wrong with Napoleon at Waterloo, and a careful study of the facts connected with the battle disproves it entirely.

If one can believe what historians say, Napoleon was contented on the morning of Waterloo. He was in good humor on that fatal morning and was joking with his generals, saying to them, "We have 90 chances out of 100 to win the battle."

If Napoleon suffered from somnolency and hemorrhoids at Waterloo it did not in any way interfere with his plan of battle, which was considered a masterpiece of strategy, but it did not work out just the way he thought it would.

Napoleon should not have won the battle of Waterloo when one considers the military side of it, which I have studied carefully, but medical writers evidently do not consider this side of the great struggle or they would not write the way they do about Napoleon's health.

Napoleon had no control whatever over the circumstances that made him lose Waterloo nor did he know everything that went on working for his defeat—just where he was badly fooled, for the Duke of Wellington and Blucher had something to say about who was going to win Waterloo and they fooled Napoleon nicely.

Napoleon himself blamed Marshals Grouchy and Ney for his defeat, as the former failed to arrive with 35,000 men to help the Emperor, while the latter was charged with cowardice in the battle. Napoleon was seven hours late in starting the battle, which had some influence on his defeat.

If Napoleon suffered from somnolency and hemorrhoids at Waterloo and lost the battle mostly for that reason, then he certainly must have been in the same condition at the battle of Ligny, fought two days previously to Waterloo, which he won.

Up to the day Waterloo was fought Napoleon had won most of his battles and he had the finest troops and cavalry to depend on that he could get. After a terrific struggle he lost Waterloo, then all kinds of alibis are made for his defeat. No credit whatever is given to the strategy of the Duke of Wellington and the brave troops who fought under him.

Napoleon's finest cavalry and troops failed to break the British line, which held all day after terrific onslaughts time and again made on it. Napoleon himself a number of times during the battle praised the valor of the British troops, for he knew what they withstood.

Many reasons are given by historians why Napoleon lost Waterloo, but his plan of battle did not work out and he was outwitted and outfought by troops as good as his own, and any ill health had no influence on the battle, for fate and destiny were against him.

Yours truly,  
JOHN C. WARBRICK, M.D.